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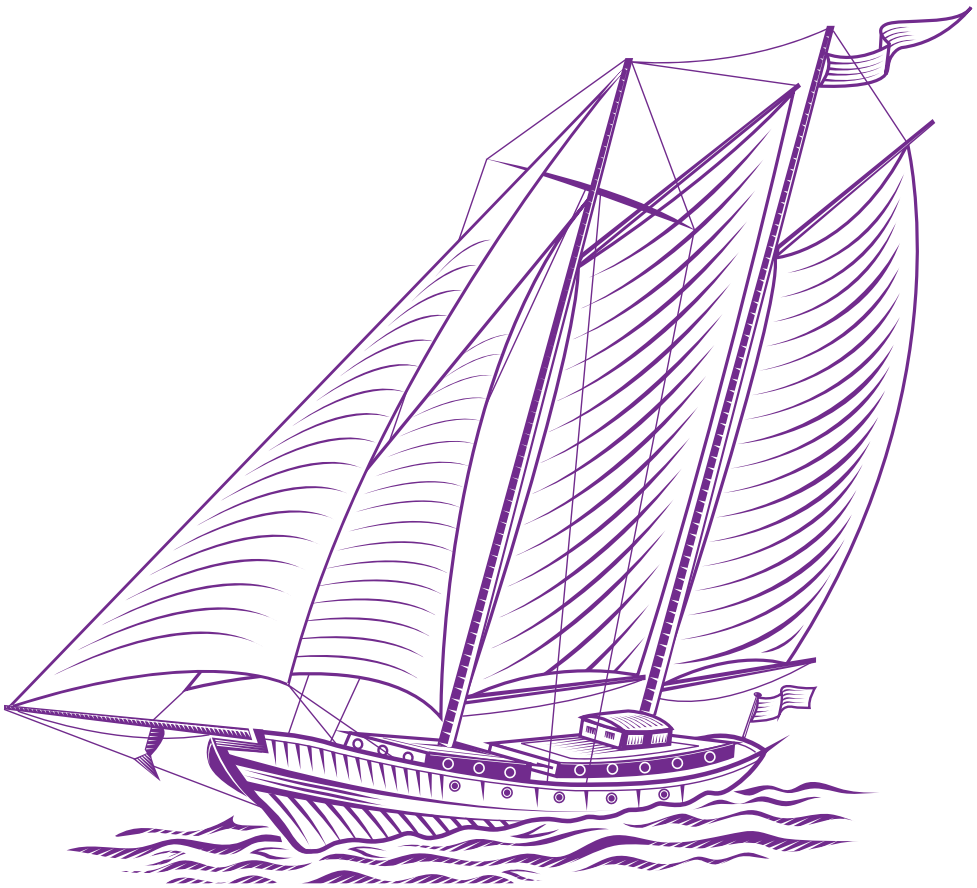

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STRATEGIC ELEMENTS FOR SUCCESSFUL PLANNING OF FESTIVALS – THE CASE STUDY OF ELECTRIC CASTLE FESTIVAL

ADINA LETITIA NEGRUSA[1], TEODORA MURAREANU[2]

ABSTRACT. Big events are playing an important role in our society and lives; therefore, there was an increase in their number in the past ten years, which automatically made them also an economic power in different countries. Throughout the paper, we are focusing on the music festival events that grew organically since their existence, and together with their development; it helped the society and economy of Romania grow. The study is focusing on good practice in organizing these events from planning to the target market and all the things that need to be taken into consideration when creating an event. The study focused on assessing the managerial team perceptions, attitudes, and values regarding the development strategy for this event with the scope to identify the key elements used in their process. To conduct the study analysis, we created a research process structured in two phases. Phase 1 involved observations of the main decisions and actions implemented during the previous editions of the festival and analysis of the official points of view of the festival's managerial team. The results of this part of the study together with the main aspects identified in the literature prepared the second part that aimed to detail more the strategical thinking of the managerial team. Therefore, this study's main goal is to identify what strategic elements are required to develop strong festivals' identities and brands in the market.

Keywords: *event management, festival music, development strategies, attendance experience*

JEL classification: Z32, Q56

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Introduction

Music festivals had evolved during the years. Considering today's world and how much it evolved the need of the customers, the festival market had to adapt and to exceed customer's expectation. We not only talk about the type of music but the whole experience. Back in time, festivals were made to admire a live performance show and appreciate the artist in front of them. Now, they serve not only to delight the consumer, but also for the economy of the country, or to mark a place on the map and to attract visitors.

The Romanian festival market, in an emerging stage until 2010 (Drăgan, 2017), has registered in few years one of the most spectacular growth in the economy, not only in terms of audience, estimated for 2019 few over 1 million people but also in terms of revenues. Time changed, the desires changed and due to the high number of people interested in this area, the number increased significantly in the last years. A study done on this sector in 2019 (Juncu, 2019) mentioned a solid growth of revenues from 77 million lei in 2010 to 380 million lei in 2016 and over 600 million lei in 2019. Beyond the tickets sold, the festival business means additional revenues from services, from food and beverages to transportation, tourism, promotional products and related businesses. Together with the revenues, the professionalization of the business, the development of innovative marketing & sales solutions have determined a significant optimization of expenses for the organization of events, and the accordingly substantial advance of the profit, from 5.8 million lei in 2010 to 62.2 million lei in 2017 and 87.9 million lei respectively in 2018 (Juncu, 2019).

Today Cluj-Napoca is a top destination and a standard in this sector. Cluj-Napoca is the fourth largest city in Romania and it is one of the most important university centres, cultural and industrial from the

country. Considering all this, the events market is a really big one and has a lot of varieties: from different exhibitions, sports events, music festivals, movies, to theatres or concerts. Beyond increasing the tourist potential of the city, these big events organized in Cluj-Napoca, like Untold, Electric Castle, TIFF, Jazz in the Park, developed horizontal businesses, with dozens of connected companies having a significant impact on the improvement of the well-being of the local communities.

The Romanian festival market evolved slowly before 2015, the most known big festival being B'est Fest from Bucharest since 2008, but cancelled in 2019, and Peninsula from Targu-Mures, which was also cancelled after 2014. Thus, the Electric Castle music festival entered the market when there were not as many competitors as there are now. It all started with the idea of a party in Cluj-Napoca that can host around 1000-2000 people. The organizer of the festival had a strong concept from the beginning based on a combination of good music, historical castle and quality activities offered for a community of people. Therefore, in 2010, after organizing a party with a foreign band, they realized that they are prepared to offer something bigger, by using an atypical location, namely the Banffy Castle from Bontida. In return for hosting the first edition there, they agreed to donate 2% out of the total revenue which was used for the construction of the rooftop.

The common characteristics of all festivals are related to the experience provided to its participants. All of them are seeking a great experience, either if it is a public free event, or a private paid one. The experience will have a great impact on emotions, preferably with a symbolic significance (Beech, Kaiser, & Kaspar, 2014). Some of the festivals relate the event to its location, culture or background. This method allows participants to connect with it and find a personal bounding.

Therefore, this study's main goal is to identify what strategic elements are required to develop strong festivals' identities and brands in the market. Because for a long-term successful event is essential to be able to build and maintain the event's partners' loyalty, the purpose of this study has been approached from the organizers and managers' points of view. In this process, the strategic thinking abilities of managers were taken into consideration due to their impacts to understand in-depth the customers' behaviour, identify untapped market opportunities that could be pursued and implement innovative decisions.

To achieve the goal, the study developed implied a qualitative exploratory methodology with data collected through in-depth interviews with decision-makers from one of the important festival on the Romanian market.

Literature review

Music Festivals are more than a participant sees. It starts with an idea, which is shared among a small group of people and shaped by each of them. Brainstorming and focused groups with trusted people are an elementary key step on the road for a successful event. There needs to be a clear vision and a purpose of it. Making a profit can be one purpose, but it is not necessary for a long-term vision. Among other purposes, there is the purpose of increasing the number of visitors in the location of the festival, helping the local community and increasing the economy of one place. But the most important purpose of each music festival should be to offer a memorable moment for all its participants.

Like in the case of tourism destinations many studies from the literature (Whittington, 1993) highlighted the importance of strategic planning in the case of events and festivals. Hall and Getz argued that strategic planning represents an essential ingredient to create successful events which generate benefits for a long time and grow of a community along with them. Thus, there were developed different approaches of the strategic planning process in the case of large scale events based on three major perspectives: classical, processual and systemic (Bramwell, 1997). If the classical and processual perspectives tend to be inward-looking, the systemic approach is more oriented to the influence of external factors, like social, economic and political. In the classical approach, the strategic planning of a large-scale event is viewed as a rational and more scientific process, with a set of distinctive steps like event inventory, product evaluation, market assessment, identification of goals, action plan and a revision process. The processual perspective comes to revise the previous idea of a formal process, establish from the outset, emphasises more the strategy as an emergent process of learning and adaptation (Mintzberg & Waters, 1985). The third perspective considers that strategy evolves in time under the pressure of external influences which are more

and more important for the successful events and festivals, and due to this should be able to emphasis the social system as the context shaping the interests and outcomes of strategy (Bramwell, 1997).

Every person has now access to all kind of devices, sources of information, such as telephone, TV, and most importantly, the internet. All these devices and sources are generating entertainment which is only one click away or one video away. What we need to think about is that our target group is in those people who are interested in going out of their comfort zone and go out for that entertainment. We can attract them if we offer something more than just the concert, which can be easily found on the internet now. The saving point here is to sell the atmosphere and the energy that is transmitted in a live performance show, which will never be the same inside the house, in front of a laptop or TV. What makes a concert unique, is the excitement that is generated and that pure happiness of staying some feet apart of your favourite artist. People have a hunger now for intangible and memorable moments which gives them the chance to truly feel that moment. To have a successful event, Buck Hoyle suggested that there are three elements to be taken into consideration: entertainment, excitement, enterprise (Hoyle, 2002). These will help to develop awareness and increase the revenue of the event.

Thus, to create a full experience, the music shows and festivals enriched their offer providing a multitude of activities in addition to music. Some artists are offering a show with dancers, some interact directly with the public and all of them are offering also an eye delight, meaning special effects. These other forms of entertainment give a unique experience and became a significant element of the festival experience (Brown & Sharpley, 2019).

A lot of studies from the literature tried to identify what factors influenced the overall experience and identified that the festival's attendees satisfaction's level depends on both generic and specific entertainment features (Baker & Crompton, 2000) (Chen, Lee, & Lin, 2012) (Brown & Sharpley, 2019) Thus, these features represent a key element which influence in a positive way the perception regarding the festival's quality (Cole & Chancellor, 2009) (Wu & Ai, 2016). Regarding music festivals, the importance of other entertainment has the most influence on the festival experience, before the music and added value or the festival's image.

When promoting such an event, there needs to be an excitement in it and show this "wow" effect that is going to take place. Enterprise is referring to the risk taken when you want to offer something new. It may not be a success, but you would not find it until you try it. Therefore, this gives a better understanding of the needs and desires of the targeted participants. People will always want to experience something new and this kind of demand will never fail to happen. (Hoyle, 2002)

Methodology

In this study, it was analysed the case of EC music festival's organization through the lens of the managerial team. We were interested in assessing their perceptions, attitudes and values regarding the development strategy for this event with the scope to identify the key elements used in their process. To conduct the study analysis, have been created a research process structured on two phases. Phase 1 involved observations of the main decisions and actions implemented during the previous editions of the festival and analysis of the official points of view of the festival's managerial team. The results of this part of the study together with the main aspects identified in the literature prepared the second part which aimed to detail more the strategical thinking of the managerial team. Phase 2 entailed a semi-structured interview with predetermined questions addressed to three different people from the management board of the festival. Therefore, ten questions were addressed in three key areas of the event organization process: marketing, production, and crowd management. Each of them was discussed with the event's decision-makers and were involved since the first edition of the festival.

Therefore, for the marketing department, were established as main objectives: which are the key elements of the EC's concept, how the customers perceived in time this concept and how they maintain it. Knowing that this department is directly related with attracting the customers, the following issues were considered important to understand more about the festival' strategy: the relationship with the target group and how is maintained it and consolidated in time. During the years, there are only 35 people directly involved in the work behind the festival and due to the amazing results obtained the interview focused on identifying the

innovations implemented in attracting customers and which are their perceptions related to eco-friendly actions taken by the festival. Being a marketing department, and also a communication department, a good part of the information was found in the secondary data, by collecting the answers from different articles or direct interviews made for the press.

Regarding the production department activity, due to some technical terms or privacy of information, a lot of data remained confidential and are not made public. The activity of this department is the hardest one, considering the location and infrastructure from the nearby area. Besides, it is the department which improved the most during all the seventh editions of the festival. Since the Head of Production knows every part of the festival, being also one of the persons who came with very creative ideas and brought innovation for the festival, he was included in the study and interviewed. To have a better understanding upon how much evolved this festival in the semi-structured interview with him, have been considered the following aspects: the challenges to organizing the current location for all activities of the festival, the criteria used in arranging the festival areas (stages, backstage, food market, attractions, camping area, parking area) and logistic resources for them. The unpredictability of some factors, like bad weather, which completes the festivals culture and image, but from the production point of view representing a big problem, was another important aspect approached in the interview and accordingly were discussed the ways to managing the festival's activities in this context. After each edition the attendances could noticed an improvement on each level, which automatically raises the question which was the innovation brought to Festival Romania market /European market by Electric Castle.

Another person involved since the beginning and who knows all the managerial information about the festival is the Head of Booking and Festival Programmer. Therefore, the semi-structured interview with him pointed out some aspects related to the starting point of this festival which allowed us to understand more about their knowledge, vision and strategy from the beginning and what changes appeared during the seventh editions. Another topic was the impact of this event in the community and local area so were considered aspects like the local community involvement in the festival and how festival addresses to environmental sustainability issues and if the festival organizers have sustainable thinking for the long run and to what extent they are working on this level.

Data obtained through both phases of the research provided a reliable characterization of the EC music festivals organization and contributed to gathering new information about big events management process. This research could provide as well insights on the innovation's capacity in managing events. In this regards, the management activities were not only analysed as attractions or assets but as their inherent potential to create new tourist supply.

Analysis of EC music festival evolution

Electric Castle has a big impact on how people are spending their summer or their holiday. It is not about just a regular music festival, it is about a community of people, who want to break free for a couple of days and relax in a built city at the edge of a village, 30 kilometres from Cluj-Napoca. It does not matter the name of the artist, it matters about the whole experience that the festival is offering to you and this is how you know that you have a successful festival.

The festival takes place in a small village, near Cluj-Napoca. This location was chosen, mainly for the Banffy Castle located there, and also for 30 ha of land, which gave the possibility to build a small village available for five days. Banffy Castle has a long history and is dated since the 14th century when it was first donated to the Banffy family by Sigismund of Luxemburg. The castle was finished only in the 17th century and was designs as a fortified monument with bastions as corners, and seven levels gate towers that served as the entrance. After many battles which affected directly the castle and time degradation, the authorities got involved after the communism time and now, it is one of the most beautiful castles from Transylvania, even if a lot of its parts do not exist anymore. Today it is open for visitors daily and it is the host for some of the Transylvania International Film Festival's events, which was also the first festival which held events there, but the castle is more known as the "Electric Castle" due to the music festival. (Condrea, n.d.).

The first edition took place in 2013, after two years of working on the idea and planning the whole project. It took place in 3 days of June and the attendances surpassed the organizers' estimations. This demonstrated

that there is a need for this kind of festival and people are willing to pay for it. Luckily, their first edition was in a moment where the festival market in Romania was not so developed and this laid the foundation for such a close community of people interested in this music festival. (Matei, 2015)

It started from a small idea but it managed to be one of the most successful music festivals from Romania, having in 2019 over 231.000 participants in five days and over 250 artists who performed on 10 different stages. Each year, the festival has the goal to improve and offer more to the public, therefore, in their last edition they were the first festival from Romania who offered a song language translator which offered a better experience for the ones with hearing impaired and they translated all major acts from the Main Stage. (Vanca).

The first edition started with four different stages and an additional place for riders and bikers, meaning a small skate park build in the festival, namely "Street Heroes by Burn- Best Line Day". This was created to give the participants an activity during the day and to attract a particular type of people. (Soare, 2013) At their 7th edition, in 2019, they managed to build ten different stages: Main Stage, Hangar by BT, Dance Garden, Booha Mansion by Ahead, Hideout by Havana Club, Courtyard by Coca Cola, ECO Stage by Lidl, The Beach by Gelatelli, Shizzle Stage by Burn and the surprise stage, The Mill. Each stage having a different genre of music and different aspect following the music.

Table 1. Data about the EC music festival evolution

Year	No of participants	No. of stages	No. of festival days	Space used for the festival (m^2)
2013	32000	4	3	40.000
2014	79000	5	4	40.000
2015	97000	6	4	40.000
2016	120000	8	4	No data available
2017	174000	8	5	No data available
2018	210000	9	5	320.000
2019	231000	10	5	320.000

Source: Authors' research

Since the very first edition, the festival had to encounter bad weather which normally should've been a very big impediment, but not for Electric Castle. The organizers were able to transform this into a marketing

campaign and help them differentiate themselves even more. Moreover, the rain matches perfectly with the festival's culture allowing its participants to experience something different. The participants were allowed to vote if there is going to rain or not at the festivals, showing the organizer's proactive thinking, constant and engaging communication strategy.

Because Electric Festival is famous for its rainy weather and all its fans know that they need to have prepared their rainy boots and raincoat ready, the organizers thought of improving the infrastructure of the festival to be prepared better for rainy weather. Therefore, they invested a lot in covering the stages apart for the main one, to which they improve the feet surface. Besides, they put gravel on the alleys and improved the camping zone.

The whole process of building the festivals starts two months before the festival, and the load-out one month. After everything is cleaned from the festival surface, 1.5 tons of grass seed is used for re-sowing.

After being shortlisted for the sixth time for the „Best Medium-Sized Festival" by European Festival Awards, they won the award after the 2019 edition. In the same year, they were nominated for the „Green Operations", is one of the most eco-friendly festivals from Europe. In 2018, they received the award for „Best Food and Drinks", showing their interest in offering the best quality products for their participants. Moreover, in 2017, they received the award for the „Best Campaign Award", which shows their professionalism among the other European Festivals. On the European market, it conquers with Melt (Germany), Balaton Sound and Volt (Hungary), I Love Techno (Belgium), Sea Dance Festival (Montenegro), all having budgets of millions of euros

Communication Manager of Electric Castle, states that the festival is offering an electric mix between electronic, rock and underground music. They try to keep an equilibrium and to follow the path that allows them to target both 18 and 30 years old public. The number of participants and the dimension of the festival was influenced by the notoriety of the artists and by the trust that both, the artists and the participants, had in the festival. To maintain the number of people under 100.000 per day and the size of the festival, they know that this can be done only by choosing properly the line-up. By booking mainstream artists the whole idea of the festival will be ruined. (Imbrea, 2019)

The festival wants to offer more than just music for its participants, therefore they introduce all kind of activities and design details that make this experience unforgettable, unique and complete, being one of the few European 24-hour festival.

One strange activity that can be found at the festival is "ice-skating" in the middle of summer. The organizers thought of all kind of activities that can be offered to the public to enjoy the whole experience. "All the Activities Tent" offers stretching and yoga sessions in the morning, and during the day, they have different contests and workshops. "EC Talks" is a session of different talks and debates provided by different Romanian journalists, actors, and influencers. They also arranged a small cinematograph behind the castle, where people can enjoy each evening a movie. (Scarlat, 2019)

"Sensorial Playground" is a concept presented for the first time at Electric Castle that makes music accessible to everyone through technology - mediated interactive experiences. "Reverse Bunjee" the challenge of letting yourself throw ten meters into the air is one of the most popular experiences of the sixth edition. The EC Billboard, which surprises the participants with different phrases and expression, and the "Royal Wheel", that has become the festival's landmarks in recent years.

Another successful activity inside the festival is The Circus, which is made by a collaboration between artists from Metropolitan Citrus of Bucharest and Cirque du Soleil. Also, there are the activities provided by all the festival's sponsors, such as 360 degrees projection experience or different instruments available for participant's creation. (Neagoe, 2019)

The festival's organizers wanted to use every space available at the location and to make the best out of it, therefore they introduced the "New Media Concept" which facilitated the access to modern art for its participants, with the help of technology, creative coding, digital installation and interactive art installation. There were projections made inside the Castle, which until the 6th edition were not open to the public and they managed to bring to life all the rooms available. By using that space, they offered the change not only to its participants to enjoy pieces of art but to the students from University of Arts and Design from Cluj-Napoca to express and present their work to one of a kind festival. (Lipciuc, 2019)

Findings from interviews and discussions

Head of Communication of Electric Castle Festival, and one of the persons involved in the project since the beginning, states that the team wanted to build a festival with a clear concept, one which is not only focused on music but more layers that will offer a better experience. This is how they manage to create an alternate world where people can escape and discover new artists, new people or just to be free for five days. The audience is always surprised by everything offered by the festival and they always try to challenge the status quo and change the way people are interacting with a music festival.

The communication with the audience is very important, this is why also Electric castle is keeping a constant communication throughout the year and they always try to learn from them and to improve the festival by using their feedback: "After all, it's their festival", states the head of communication department.

The festival has a mixed strategy in attracting its customers. Considering all the experiences that they offer, gives them automatically a wider variety to approach their customers. Firstly comes the eclectic line-up mixed with new media installations and performances, which automatically is a plus for the festival market from Romania. In addition to these, there are the breath-taking scenarios and the historical surroundings which allows its participants to discover, explore and enjoy everything available there. An important aspect that needs to mention is the high-quality of all the production, together with the impressive and internationally acclaimed architecture of the festival. All of these are products and services offered to the customers within the price set on the general access.

No business stays alive without its customers, therefore Electric Castle managed to stay on the market on the length of seven years. During this time, there were different kinds of customers who turned into clients and loyal fans. In 2013 there were only 32.000 tickets sold, while in 2019 there were 231.000. Out of these customers, there are the die-hard fans who buy their tickets with one year ahead of others, mainly because they trust the team behind it. During the marketing team, there are 20 people directly involved in working with attracting customers.

The team was build up with people who were at their first-ever event, with no previous work in such kind of project. It was a challenge from the start, having no idea how this is going to be perceived by the

crowd or even by international artists. Besides not having a real help from the local authorities, neither the experience needed, their only driven idea was their belief in creating a festival for their own, just like they imagined.

Considering that none of the people involved in the team had worked in such a project, for their first edition, they followed the plan of some music festivals from Serbia (Exit Festival), Budapest (Sziget Festival) and Austria (Nova Rock). Every year they worked on improving on each level and worked on making each edition better than the previous one, which involved starting from scratch sometimes. This is what the managerial board considers being the most interesting fact about working on a festival, reinventing yourself together with the idea behind it.

When asked about the sustainability of the festival, the Festival Programmer, said that Electric Castle is built with a focus on the environment and sustainability. Taking into consideration that the festival is built from scratch on a camp, their main goal is to always take extra steps to reduce the festival's footprint and their main drivers are to reduce the waste generated by the festival. One of the biggest challenges and barriers of addressing sustainability at the festivals include the financial costs, lack of time, and control over festival venues and the inability to source appropriate supplier or supplies. The biggest reward is when they see that most of the people are very engages in the eco campaigns and they help them out.

Some of their future goals in terms of making the festival sector more sustainable were related to the elimination of all plastic containers and utensils used inside the festival perimeter. By the next edition, they will replace all drinks served in plastic cans, bottles or cups and encourage all their collaborators and partners to use bio-degradable materials. Each collection container will be split into three segments: plastic, waste, and aluminium. Because it is their main concern, plastic will be separated from everything else.

The festival started implementing eco-friendly strategies since 2014 when they starting selecting waste and promoting bike tours to arrive at the festival. Same time, they designed the "EC0- Electric Castle Zero Carbon Footprint" project which is the festival's long term commitment to environmental protection. Their goal is to become the greenest influential electronic music festival in Romania, together with a promotion of a conscious

way of living to the 97.000 festival's young attendants. Back in 2014, they ran the pilot-program named "Stronger. Bigger. Better. Greener" whose positive outcomes led to the 2015's program "We are the people who green the world", which is the next step towards raising awareness about the importance of fighting climate change through music and sustainable events organization.

The key highlights of the Eco-awareness & CO2 Footprint Reduction Program at EC 2015 are the following: 2 Eco Spots active for 24 hours in the festival area and 12 hours in the camping area, with more than 5.000 person's traffic per day. More than 7.5 tons of packaging waste collected selectively, out of which 1.240 kg paper, 1.260 kg plastic, 2.500 kg metal, and 2.640 kg glass. 12 ECO-Ambassadors rode their bicycles to the castle from more than 250 km (total 5.421 km). Nine artists endorsers (both international and Romanian) for the Music Drives Change video campaign, who joined the eco calls-to-action. More than 700 WH produced by participants who pedalled on the Interactive Pedal Power bicycle system. In the "Battle of the Pedals" competition, there were 1.000 participants who raced in the dynamo bicycle. The ECO-Game was played by 507 festival participants, in which they rewarded the eco-friendly ones, meaning the ones active through alternative transportation, energy efficiency, and waste reduction, with a Giant bicycle, an EC2016 full pass, and three official T-shirts. A carbon footprint average of 8.2 tons per EC participant, based on the carbon footprint calculator overall results and 10.000 waste bags and 10.000 wipes spread in the camping.

For the 2016 ECO Challenge, the results include 30 eco-ambassadors which pedalled 16.754 km, in total, to reach the Banffy Castle. International Eco Ambassadors from Netherlands, London, Copenhagen, Vienna, and cyclists from all over Romania joined the initiative, supporting their causes through this trip. 2.258 festival participants came onboard in the ECO Challenge contest and learned about how they reduce daily carbon footprint by performing at least three actions from the ECO Challenge's categories of actions (transportation, water, energy, social, waste).

The 2017's edition was 1st year when Electric Castle embraces the #ZeroWaste mission as a long-term goal to reduce, reuse and recycle all the waste generated at the festival, which was also 4 Years cumulated of Sustainability Program at EC. The final results were 2/3 of the entire

waste generated at the festival, containing: 4.50 tons of PET, 1.70t aluminium, 1.40t plastic, 3.50t cardboard, 0.35t tetra pack, 8.50t glass, all cumulated being a total of 18.95 tons of waste recycled. This year 27 cyclists from all over the country pedalled 10.000 km to the Banffy Castle, who promoted 10 sustainability-related causes: Cycling as alternative means of transportation, deforestation, natural conservation and natural parks, awareness on people with disabilities and library of materials.

The Festival programmer and Head of Booking department states that the most significant impact of the festival is on the Castel's preservation. They are fully committed to supporting the Banffy Castle custodians in their long term efforts to restore the castle and historical buildings surrounding it to preserve the cultural heritage and attract more visitors. Besides the selective waste collection and heritage preservation, the festival is also fighting food waste. Considering the length of the festivals and the high number of people involved in it, namely 5 days, more than 200.000 people with 3 meals per day. Their goal is to collect usable leftovers food from all around the festival and working together with Food Bank from Cluj-Napoca, they will share it with different NGOs from the city that can further distribute it to those in need.

Electric Castle Festival is a client-oriented event which makes the organizer pay more attention to customer needs. After each edition the festival is asking its customer for short feedback which has the aim of discovering the pros and cons of the previous edition. In this way, they can see which department they will have to improve and what the customer's needs are. By doing this, they not only will improve on different levels but also will be able to think and rethink some aspects which will lead to innovation in the sector. Going from this aspect of creativity, Electric Castle managed to bring some innovations to the market. They came with a better approach to the bar service and took into consideration a wide variety of food, right from the first two editions, back in 2013 and 2014. From the production point of view, they made the biggest efforts, with upgrading the stages and they put a lot of investment in architecture and design of the overall festival area.

The festival innovations consist of improvements or new approaches to different production problems. On the festival market from Romania, Electric Castle brought a new approach of the saddle span structure, one

of the structure of the stages (Hangar Stage) which allowed them to offer cover protection to a lot of its participants, the Main Stage look and approach on detail and overall design, having the first stage with one of the biggest 8k resolution LED screen form Europe. Because it is the only and the biggest festival from Romania held on a camp in the countryside, this allowed the festival to innovate the infrastructure of it, together with bringing for the first time in Romania a Ferris wheel to a festival. The festival is trying to innovate and develop on each level, in every department, but within budget. Also, it attracted a lot of brands, therefore they started with brand activations.

Another innovation at the festival is the "New Media Castle" project. It started at the beginning of it when the team had quite a unique approach to architecture and design. In 2013 they had a scaffolding cube with python tubes in it and in 2014 they built a smoke labyrinth. In 2017 they introduced the brand activations like the Lords of Lightning or the Umbrella Projection and one year after different interactions and projections. In 2019 they were prepared to introduce something big, therefore they brought different audio-visual architecture controlled digitally to engage interactivity between art and the end-consumer. Because of the limitation of the expansion of the digital exhibition, they were forced to install it mainly inside the castled and in the old stables. Because the castle is under renovation and in a preserved state, it was impossible to attach or install something against the ceiling or the wall. A lot of creativity was involved to ensure that they can deliver a high-quality experience to its participants and also to preserve the interior. In this project, they started working together with professional artists in this area, together with promoting undergraduates from Cluj-Napoca University enrolled in the Faculty of Arts.

Each decision-maker states that the festival is trying to innovate on different level each year. Either through the way of the festival's look, the line-up, the experiences that can be discovered during the five days or through the communication campaigns. Moreover, they intend to improve every year and they treat seriously the feedback got from the customers, after all, is their festival.

Conclusions

Electric Castle is a music festival developed in a time when there was a weak competition on the events market, but managed to remain and even become stronger during all this period. It not only maintains its position but was able to build a community and a culture around it, which is still very powerful and will remain like this for a longer period. It started from an outdoor party in a medieval location and it transformed into one of the biggest festivals in Romania and the best medium size festivals in Europe.

All the members' managerial team involved had no previous experience or knowledge about big events management, but they did a great job since the beginning. So, the managerial skills play a vital role in the success of an event and for long-run perspective, we can add something that results in case EC the strategic thinking of the organizers and managers involved. Each edition was a step for them to rethink and restructure all the festival while learning new things and adapting to the fast-moving environment of music festivals. Besides, they even become better at some levels, than a lot of festivals from Europe. Even if the theoretical approach of strategic management process emphasises the importance of a formal plan from the outset, seams that in the case of EC the mangers followed from the beginning the processual perspective and lately, after gaining more experience and when the festival's identity was more solid in the market, they moved to the systemic approach, paying attention to more external factors and interest groups on strategic planning.

Considering its size, the Electric Castle's goal is to remain a medium-sized festival and this is mostly due to the difficult part of the infrastructure and the difficulty of a high flow of people to get to the festival. How can they do that even though it is such in demand and popular? All of this is part of the line-up mostly. People come to the festival in the first place for a particular artist or bands, secondly for the experience and thirdly to be part of a group of friends. Therefore, the organizers of EC are choosing two or three headliners and the rests are built after them. This is how they manage to stay a medium-sized festival and stay within the culture. This aspect comes in accordance with Bramwell's results (1997) that the research and monitoring steps before and after the event are essential to

facilitate the planning process, to be flexible, fast in decision-making, more effective and fruitful the opportunities. The EC managerial team offers a wide variety of artists, from which people can discover other new artists. They try to keep it like this because if they would change the genre of music, this will automatically change the customers together with the entire festival image. Besides booking new artists on the market, they offer the chance to different new-comers to play at the festival. This is a very big opportunity for all music passionate and can be a springboard. They promote new artists also in the New Media Castle project, where they invite different students from Babes-Bolyai University to show their audio-visual projection. Together with these opportunities that DJs and young artists have within the festival, we can include also the volunteers. In conclusion, for maintaining the festival's image it is important to keep the same concept, even if the innovations are applied to diversify how the festival's activities are done. In this context another important strategic element is innovation. During the entire evolution of the festival's development was identified the same approach, to come with changes that create a strong identity for the festival and response in the same time to the participants' expectations.

What needs to be taken into account by all managers of big events is that there needs to be a specific targeting before starting the event and then adapt all the services and products around the target's needs. In this way, you will be able to create a community that will help you create stability on the market and grow even more. To do that, you will need to take into consideration all of their feedback and to deliver better services to the upcoming edition with the respected adaptability within their needs. By doing this, you will be able to maintain your status and to build trust among all people involved. Another important aspect is to be aware of the power you have after building a name on the market and a community around it. You will be able to educate your participants and to raise awareness of different causes you believe in. After all, a festival or a big event has in the centre the customer, which pays the service and which will return if the needs or expectations were met. To have success in this market, make sure you can offer everything you promise or more, to all of your participants.

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ROMANIA'S LONG-TERM GROWTH PERSPECTIVES

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ABSTRACT. In a world of sustainable development, affected by a certain short-term liquidity distress, the economic actors are facing uncertainty since inadequate resource management and decision making can have significant effects over a country's future economic and societal development. Therefore, the stakeholders involved in the decision-making process consider economic forecasts, based on variables that factor in recent developments, to aid them in the aforementioned process. If they did not, they would not have a greater understanding of a country's performance indicators. Using past data, a set of analyses are performed, and economic models are built, with the scope of probabilistically determining Gross Domestic Product (GDP). The main objectives of this paper are thus, to assess Romania's development since joining the European Union (EU) and provide a long-term macroeconomic projection, together with a comparison between the forecasted data and the country's Sustainable Development Goals (SDGs) in order to realistically estimate their achievability. Furthermore, a set of scenarios have been built that aim at creating a clearer perspective of how the recent global pandemic might affect Romania.

The data sets have been taken from Eurostat, the International Monetary Fund, World Bank, European Commission, National Bank of Romania and the National Institute of Statistics; and a set of statistical tools have been used to fulfill the previously stated objectives, namely; Auto Regressive Moving Average (ARMA) for the short-term forecasts and Variable Autoregression (VAR) for the long-term models.

The main results suggest a negative GDP growth of 4.95% for 2020 followed by a strong rebound in 2021. However, this figure will drastically be affected by how well or poorly the situation is managed. The European Commission anticipates a downturn of 6% in 2020 and a rebound 4.2% in the following year. This paper includes a sensitivity analysis as well, that attempts to eliminate potential forecasting biases.

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Introduction

It is without doubt that we live in a scarcity and our progress can only be defined by how well we allocate resources. By looking at past data, future forecasts can be made to anticipate economic growth to constitute a more effective resource distribution. Predictability is so important because it builds confidence in the economic environment and leads to more educated decisions that overall result in the creation of welfare, as long as the forecasts are accurate and realistic, the contrary leading towards less prosperity. Take Zimbabwe for example and its' severe case of hyperinflation, reaching 231 million percent in July 2008 according to official sources and reported by (McGreal, 2008), and peaking at 89.7 sextillion percent in November the same year, according to a measurement index, however, no official sources have confirmed the number (Hanke & Kwok, 2009). This havoc was caused by military adventures and reckless spending which threw the country into huge budget deficits and forced seizure of commercial farms that almost brought the agriculture to a halt (Coomer & Gstraunhaler, 2011). Budget deficits can only be financed by limited means such as foreign or domestic borrowing, tangling foreign exchange reserves or by printing money (Fischer & Easterl, 1990). Had the country paid attention to the repercussions given by such implied decisions, they could have mitigated the harmful aftermath, however, the isolated case in cause was a result of political turmoil rather than an inability of causal anticipation. It can be argued that the latter had resulted as a matter of the aforementioned incident. As so with other cases of hyperinflation or economic uncertainty, it is important to understand and consider potential effects that a decision

can trigger, using forecasting methods with the help of econometric models. (Onofrei & Lupu, 2014) shows that controlling inflationary periods leads to stronger growth.

This paper seeks to emphasize the importance of economic forecasting with respect to long-term growth, by creating a 10-year economic forecasting model. Moreover, it assesses the macroeconomic evolution of Romania since joining EU and compares it to other similar economies, with the objective of shedding a light upon whether the policy makers have been interested in effective growth or they have been endorsing practices with a different objective, regardless of the respective, which will not be discussed in this paper since the objective is purely analytical and it contrasts macroeconomics and not societal policy making.

In this respect, the paper is organized as follows. The first chapter is composed of the literature review, the second chapter details the research objectives and the methodology, while the third chapter includes the results along with estimates of GDP aggregates, forecasting models and the scenario analysis. The paper ends with conclusion.

1. Literature review

According to Vojtovic and Krajankova, the determinants of economic growth are a subject of change over time (Vojtovic & Krajankova, 2013). For example, before the accession, Romania had been a smaller stakeholder in EU growth compared to present days. A subject of change are even the assessment methods since they largely depend on methodology, approaches, time span and a set of specific factors (Barro, 1991). Different authors list a set of different factors as determinants, however, the ones that can commonly be agreed on are employment, inflation, current account balance, governmental debt, exports and imports, foreign direct investment, gross capital formation, natural resources, infrastructure and technology development, natural resources, social and political factors (Simionescu, Lazányi, Sopková, Dobeš, & Balcerzak, 2017). Kondratiuk list two key structural factors that stimulate growth, namely, liberalization of trade and the rate of development in communication technology (Kondratiuk-Nierodzińska, 2016). Globalization is another factor for consideration. Capello and Perucca state that it had a positive effect on EU integration

and CEE economic performance (Capello & Perucca, 2013). O'Rourke defines globalization as the decline in barriers of trade, migration, capital flows and FDI (O'Rourke & Williamson, 2001). According to (Mutascu & Fleischer, 2011), countries that globalize more tend to maximize economic growth on a medium and long-term basis. Moura and Forte consider FDI a key determinant of growth in the context of globalization because it tends to contribute to job creation, increases in labor productivity, a more efficient asset allocation, less regional disparities and a higher competitiveness of an economy (Moura & Forte, 2013). Simionescu showed that FDI did not generate economic growth in Romania after the last financial crisis but a higher economic growth attracted more foreign investors (Simionescu, Lazányi, Sopková, Dobeš, & Balcerzak, 2017). The empirical literature suggests and confirms that in the case of Visegrád Group - V4 (Hungary, Slovakia, Poland and Czechia) countries and Romania, a quick and sustainable growth has been achieved by the utilization of EU funds and the achievement of convergence criteria (Nežinský & Fifeková, 2014). Cuaresma et al. showed that a social factor as education also played a key role with respect to growth as new states developed faster due to investment in education (Cuaresma, Doppelhofer, & Feldkircher, 2014). Research and development are another factor to consider (Bilas, Bošnjak, & Čizmić, 2016). Considering that R&D expenditure is commonly treated as the most important investment in building a knowledge-based economy, empirical research shows that that the influence of R&D on the growth process is very complex.

As a result, an effective utilization of investment in R&D depends on many institutional and even to some social factors. Thus, a positive influence of R&D on growth is not automatic (Balcerzak & Pietrzak, 2015). A study made for the CEE countries showed that the economic growth was influenced in 1990-2010 by political certainty and stability and by political freedom (Radu, 2015). Natural resources tend to have a considerable impact on economic development. The impact of energy consumption on economic growth was studied along time. For Czechia, Hungary, Poland and Slovakia, the V4 states, and Romania it was emphasized that energy consumption was positively correlated with economic growth, being a cause of output increase in the period of 1995-2012 (Kasperowicz & Štreimikienė, 2016).

Other studies point out that the level of financial intermediation is a good predictor for economic growth rate, capital accumulation and productivity (King & Levine, 1993). In the same context, Carlin and Meyer concluded that there is a strong relationship between the structure of countries' financial system and economic growth (Carlin & Meyer, 2003). A causal relationship between economic growth and financial markets development was identified in a different study: a 1% improvement of economic growth determines a 0.4% rise of market capitalization/GDP ratio. Yet, according to their results, market capitalization/GDP ratio does not represent a significant determinant of the economic growth (Garretsen, Lensink, & Sterken, 2004).

With respect to growth perspectives, Firoiu et al. explore the 2030 agenda implementation status of sustainable development goals and try to determine to what extent Romania will be able to achieve them. Their results showed that the implementation status is sub-optimal. In case of 40 indicators out of 107, forecasts indicate the possibility of reaching EU average values only in the context of involving all stakeholders and increasing concrete, well-targeted measures to improve SDG indicators (Firoiu, Ionescu, Băndoi, Florea, & Jianu, 2019).

2. Research objectives and methods

The main objective of this paper is to provide a 2030 macroeconomic projection of Romania and assess the achievability of proposed agendas in relation to the most recent international developments. To create a clear perspective, the following main objectives and targets have been addressed. First, it is imperative to assess how Romania has developed since joining the European Union. Second, to create a viable 10-year forecasting model and address the 2030 macroeconomic projection. In terms of targets, a fundamental benchmarking will be done in order to determine how GDP has developed relative to other regional economies and then, consider GDP aggregates such as Debt/GDP, public deficits and trade balances so that a regional overview is created. Euro adoption will then be discussed, but only after the point at which a forecasting model is built and used to determine probable future outcomes. The last target is to determine whether the 2030 vision can be achieved or not.

Methods

To determine how Romania has performed since joining the European Union with respect to fundamentals, a horizontal analysis was done, assessing the relative change compared to previous years. Moreover, a vertical analysis was also done, by comparing this evolution to other regional economies and the European average, on the grounds that a higher than average performance is considered to be a better development, not considering the reasons why that happened. Institutional data was taken from the International Monetary Fund (IMF), World Bank (WB), Eurostat, European Commission (EC), National Bank of Romania (NBR) and the National Institute of Statistics (NIS).

With respect to forecasting, two different methods were used, that are widely recognized in the literature: Autoregressive Moving Average (ARMA) and Vector Autoregression (VAR). ARMA was popularized in 1970 by the Box-Jenkins method; it is used to better understand a time series and predict future values while VAR is a method for determining interdependencies between multiple time series.

Several variables were analyzed in order to determine the best forecasting model. First, a good fit had to be chosen in terms of regressors since more variables included would trigger more noise and therefore a less accurate forecast. After the parameters have been determined, the best model was chosen based on the highest R squared, which implies the predictability of the dependent variable from the independent ones, the lowest Akaike, which estimates the model quality relative to other models and the lowest Schwartz criterion, which is based on the likelihood function; and the lowest value of squared residuals. Another consideration on which the ARMA model was selected was based on checking for correlograms. After the model selection and the forecast, a performance evaluation was done using conventional assessment methods such as Mean Squared Error (MSE), Root Mean Squared Error (RMSE) and Mean Absolute Percentage Error (MAPE).

3. Results

There has been a positive YoY GDP growth at current prices in the last 12 years at an average of 6% annually, the only exception being 2009-10 which can be attributed to the last financial crisis. It can be

observed that growth has been quite irregular with a slow recovery after the downturn, averaging at only 2% YoY, followed by a rapid growth stage at a 9% average. At 2010 prices the median YoY rate is halved but still in rapid growth territory, registering a negative 2% growth average in the last downturn followed by a 4% upside recovery. EU GDP growth has averaged at 3% with regards to current prices and only 1% at constant prices. It is to be noted that the constant series represents a more accurate growth rate since it accounts for inflation. Another criteria is benchmarking Romania's GDP as a percentage of EU's GDP, although this method can be quite unreliable. The country's main performance indicator amounted for 1.2% of EU's GDP in 2007 and a 1.6% in 2019 showing a 0.3% development. One reason through which the above average growth can be explained is the catch-up effect, defined as the law of diminishing marginal returns. It states that each time a country invests, the amount gained will eventually be worth less than the initial investment assuming inputs remain constant, so returns must be higher in developing countries against mature economies (Brue, 1993). Other authors attribute the growth to the absorption of convergence funds combined with access to technological know-how that had already been researched and developed which implies that replication at reduced costs is possible, thus resulting in rapid growth rates. The actual GDP evolution can be seen in table 1.1.

Table 1. GDP at constant prices (EUR million)

	Romania	Bulgaria	Czechia	Croatia	Hungary	Poland	Slovakia
2007	126,359	36,922	156,760	48,580	104,290	325,783	64,527
2008	138,120	39,169	160,965	49,435	105,394	339,628	68,124
2009	130,499	37,828	153,234	45,797	98,333	349,206	64,408
2010	125,408	38,044	156,718	45,111	98,986	361,803	68,093
2011	127,926	38,938	159,504	44,972	100,787	379,956	70,043
2012	130,583	39,078	158,228	43,965	99,304	386,065	71,371
2013	135,172	39,203	157,463	43,724	101,253	391,439	71,850
2014	139,783	39,946	161,738	43,679	105,501	404,429	73,827
2015	145,197	41,539	170,325	44,743	109,558	419,955	77,387
2016	152,165	43,123	174,499	46,302	111,968	432,822	79,031

	Romania	Bulgaria	Czechia	Croatia	Hungary	Poland	Slovakia
2017	162,986	44,635	182,094	47,755	116,808	454,193	81,434
2018	170,218	46,012	187,277	49,042	122,758	496,361	84,718
2019	177,162	47,563	192,082	50,482	128,808	527,033	86,647

Source: Eurostat.

All countries have shown an impressive GDP growth in 2007 as a result of convergence funds absorption, averaging at 7.1% YoY from 2006-2007. The last economic downturn has had negative effects on all nations with the impact being visible from 2009 onwards and a mean of negative 4%. All countries registered growth in 2010 except for Romania and Croatia, while Slovakia had a fast 6% recovery. It is to be noted that Romania showed an upward evolution between 2012-2013 while Bulgaria did not grow while Czechia, Croatia, Hungary, and Poland did so but negatively. Slovakia is the only nation besides Romania that showed recovery. The following years have shown GDP growth for all economies averaging at 4%, above EU median.

At an average YoY growth rate of 4%, Romania has become more efficient in development when compared to other CEE economies, with a 0.2% surplus compared to Poland, in terms of real final output. Bulgaria, Czechia, Croatia, Hungary, and Slovakia have grown by 3.3%, 1.7%, 1%, 1.9% and 3.1%. Another consideration is represented by the Purchasing Power Parity (PPP), which according to (Taylor & Taylor, 2004) states that the nominal exchange rate between countries should be equal to the ratio of the aggregate price levels. After the PPP has been computed, it can then be cross rated to a common currency, Euro being the default as it is the standard currency in Europe.

However, PPP has some downsides as well since it does not account for variables such as trade tariffs and other implied costs of international trade. Taylor concludes his paper by arguing that short-run PPP does not hold and is not representative for assessing the purchasing power of a country due to volatility effects that can be expressed as economic shocks, but it may hold over long timespans because there is significant mean reversion of the real exchange rates.

Assuming the statement holds, because over time there have been less fluctuations of the EUR-RON exchange rate, namely, between January 2000- December 2005 the relative change was of 99.7% while from December 2005 to December 2019 the relative change was of only 30%, implying a higher degree of stability and less overall fluctuations in the economy as the latter timeframe encompasses the last financial crisis.

Debt to GDP and deficits

Debt to GDP expresses a country's total public debt relative to its' total GDP over a period of time. By doing so, it assesses whether a country can pay back its' debts or not. According to (Wray, 1998) and his Modern Money Theory (MMT), countries are not constraint by revenues when it comes to government spending because the governments could print as much money as needed because they cannot go broke. Conventional theory suggests that printing so much currency will lead to catastrophic events like the inability to pay debt and hyperinflation, as it has many times been the case, some examples being Zimbabwe, Yugoslavia, Hungary, and Germany. Essentially, MMT is an oversimplification of the challenges of reaching non-inflationary full unemployment that ignores the dilemmas of the Phillips Curve (Palley, 2015).

However, having debt can stimulate economic growth. Empirical results show that in the short-term impact of debt to GDP is positive in the Euro area for countries that score up to 67%. Should those countries have a higher ratio, the positivity is reduced to zero and for countries with a level of above 95%, additional debt has a negative impact on growth. Additionally, long-term interest rates are subject to high pressure for a debt to GDP ratio above 70% (Braum, Checherita-Westphal, & Rother, 2013). Even though most countries have kept constant debt levels, it is important to note that the debt is relative to the GDP, meaning that each country has in fact borrowed more as GDP grew.

Since the debt to GDP ratio has mostly remained constant, it is a necessity to also examine the budget deficits, which is the amount of money borrowed, expressed as a percentage of GDP that helps in financing government expenditures. An increase in the deficit ratio leads to a higher debt-capital ratio which in turn leads to lower growth since the deficit and capital output increase relative to the economic growth.

Trade Balance

(Backus, Kehoe, & Kydland, 1992) find that, at least for their analyzed sample, the trade balance is uniformly countercyclical, and it is negatively correlated with current and future movements in terms of trade but positively correlated with past movements. All analyzed countries have improved their negative trade balance, resulting their transformation in export countries, the only exceptions being Romania and Croatia, albeit that Croatia has managed to keep the deficit below 1% while Romania showed signs of following the trend up to 2015, after which the deficit has worsened yearly.

The long-term outlook of Romania

ECB has published its updated economic overview and forecast in June 2020. According to it, there will be an uneven economic recovery throughout the continent in the form of a gradual "U shape". It is presumed the highest economic impact will be seen in Q2 2020 because of the restrictions. As a result, GDP is expected to contract by 7.4% across EU, followed by a sharp upside of 6.1% in 2021, the full recovery from this pandemic being forecasted to happen by the end of the latter year. Prices are only to change by 0.6% while the public budget balance is foreseen at negative 8.3% in 2020 and negative 3.6% in 2021, far more than it had been in the last economic downturn, the difference being the timespan in which this high deficit had been maintained or reduced. Consequently, the gross public debt will enlarge to 95.1% of GDP, followed by a 3% contraction in 2021 to 92%.

Table 2. Total Impact of the pandemic

	2019	**2020**	**2021**
GDP	1.5%	-7.4%	6.1%
HICP	1.4%	0.6%	1.3%
Unemployment	6.7%	9%	7.9%
Budget balance/GDP	-0.6%	-8.3%	-3.6%
Debt/GDP	79.4%	95.1%	92%
Current account/GDP	3.25	3.1%	3.4%

Source: ECB

In order to understand how close to reality a forecast can be, an analysis using already existing data has been done. First, a unit-root test was performed which proved non-stationarity. In the estimation, a dummy variable was assigned for years 2009-2011 to explain the economic shock of the last downturn. The equation output can be seen below:

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.068282	0.086216	0.791991	0.4320
LOG(GDP1(-1))	0.984115	0.024761	39.74485	0.0000
DUM	-0.025374	0.004374	-5.801478	0.0000
AR(1)	0.515446	0.498777	1.033419	0.3063
AR(2)	-0.615069	0.256874	-2.394440	0.0204
MA(1)	-0.569103	0.597812	-0.951975	0.3456
MA(2)	0.412095	0.386604	1.065936	0.2915
SIGMASQ	0.000233	3.29E-05	7.082712	0.0000

R-squared	0.985867	Mean dependent var	3.540321
Adjusted R-squared	0.983928	S.D. dependent var	0.129584
S.E. of regression	0.016428	Akaike info criterion	-5.250523
Sum squared resid	0.013764	Schwarz criterion	-4.968823
Log likelihood	162.8904	Hannan-Quinn criter.	-5.140558
F-statistic	508.2388	Durbin-Watson stat	2.068304
Prob(F-statistic)	0.000000		

Inverted AR Roots	.26+.74i	.26-.74i
Inverted MA Roots	.28+.58i	.28-.58i

Fig 1. Estimation output

Source: Authors' own calculation

As mentioned, the results indicate non-stationarity since, based on the evolution of the time series, there is a clear upward trend as time goes by. An aspect to consider in this regard is the type on non-stationarity that is present in the respective trend. With the available information and the equation outputs, it can be observed that the non-stationarity is a random walk with a drift since the growth is unkept at constant level and it is influenced other factors. The selection criteria were based on the best Akaike fit, the lowest sum of squared residuals,

no correlograms and FIML. This model only forecasts data up to Q4 2019. Q1 2020 is represented by a stagnant evolution, while Q2 is seen with a 9.1% downside and a total GDP of EUR 167.55 billion, a total negative growth of 4.95%, followed by a strong rebound of 5.2% in 2021. The European Commission predicts that Romania's GDP will diminish by 6%, followed by a 4.2% rebound over the same timeframe. IMF's World Economic Outlook database, updated in April 2020, currently shows a negative 5% growth and a rebound of 3.9% in the following year; World Bank's report shows a negative 5.7% in 2020 and a positive 5.4% upside in 2021. Adjusted for an economic shock, the forecasted GDP takes values EUR 167.65 billion in 2020 and EUR 176.26 billion in 2021, meaning a 5.2% rebound.

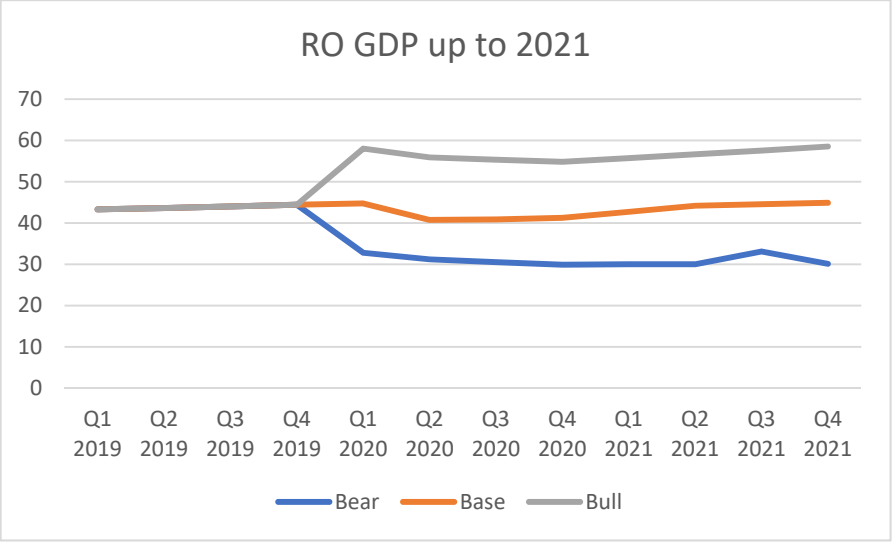

Fig 2. GDP forecast

Source: Authors' own calculation

A VAR model

Other authors built a VAR model based on 6 indicators to determine China's Economic growth. A constructed model for Romania included 6 variables: a dependent variable (GDP) and 5 independent variables that are fixed capital formation, exports, imports, M3 and general government debt. Assuming a base case where no other shocks will happen until 2025

and considering the effects of the current situation will impact Q2 and Q3 2020, Romania's GDP is forecasted to reach EUR 169.69 billion in 2020 and EUR 180.72 billion in 2021. Furthermore, this scenario includes to EU aid package. It is without doubt that the actual GDP value will not be the same as the forecasted value, however, with a 95% probability, the metric will be between EUR 94-267 billion, the first number representing the bear case and the second one representing the bull. The significant difference between the bull and bear case can be explained by the confidence interval. In other words, the lower the confidence interval is, the closer the bull and bear cases will be to the base model's estimate; however, that would imply a higher inaccuracy in the outer bonds' prediction. Because these bonds have been considered the very worst, respectively best outcomes in a long-term perspective, the deviations from the base model can be explained in two ways. First, in a bear case, the pandemic triggers a downward domino effect that causes massive economic negative growth and second, the pandemic triggers an accelerated upward trend. It is important to note that the average of the cases represent are closely in line with the model's base case.

Table 3. Bear and bull case

	Bear	**Bull**
2020	94.61	267.61
2021	59.00	320
2022	54.00	334
2023	51.00	347
2024	40.00	365
2025	34.00	396

Source: Authors' own calculation

Uncertainty plays a big factor when considering the large number of possibilities and factors that can affect how development might occur. At the same time, it is easy to extrapolate a simpler model in which the world emerges in another expansionary period. Thus, a potential GDP can be estimated. As there are not enough observations in the sample, a larger timeframe has to be considered. With these implications, a bias

can occur with respect to the fluctuations of Romania after 1989, a period characterized by reform and instability. A model that can be calculated is the one for Europe and based on it, estimate Romania's GDP. One aspect that has to be considered is the potential error of estimating a country level aggregate. Nevertheless, the estimation outputs suggest an EU GDP contraction by 5.85% in 2020 and a 0.17% recovery in 2021, YoY, implying a U-shaped recovery, assuming no other events will happen.

In a case the quarterly data is taken from 1995, with dummy variables explaining all shocks in the economy since then, Romania's GDP is forecasted to reach EUR 199 billion by 2025 and EUR 234 billion by 2029, at 2010 prices.

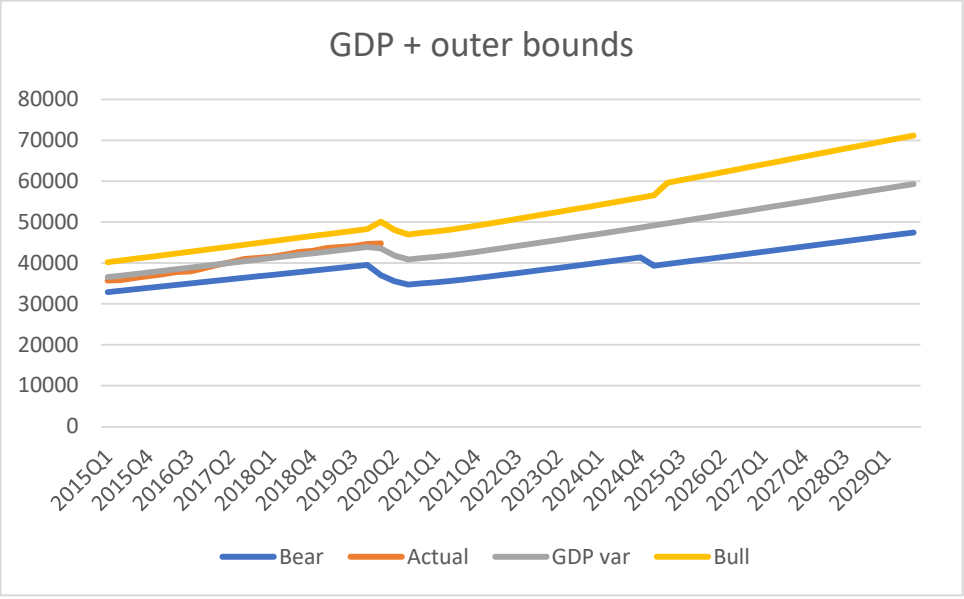

Fig 3. GDP and outer bonds

Source: Authors' own calculation

(Bratu, 2012) points out that there are 3 ways in which a forecast's performance can be assessed, which the international environment tends to use: accuracy, bias and efficiency. She also points out the two ways to measure prediction quality: Vertical (MSE) and Horizontal (distance in time).

Scenarios

In order to create a sound perspective on how the economy will evolve, a scenario analysis must be done. Not only does it provide a broader understanding of the macroeconomic dynamics, but also helps in future policy making. For the purposes of this analysis, 4 scenarios have been considered: the aforementioned base case, the potential effects of the pandemic lasting longer, a V shaped recovery, a W where the pandemic triggers and economic downturn in the future. Furthermore, another case has been considered, where there would be an increase in fixed capital formation.

The base case

As a base case, Romania is forecasted to rebound by around 1.4% in 2021 followed by an accelerated growth period of around 4.67% YoY, looking like a U-shaped recovery. Even so, the forecast expects a stagnation in 2024. A few assumptions have been made to justify the bull and bear. The bull has been considered at a 5-stage growth scenario, by 3%, 5%, 10%, 15% and 20% above forecasted rate. The high number of growth stages have been considered because of the uncertainty brought with long-term forecasting.

The same assumptions have been made in respect to the bear case. On a base case, by 2025 Romania's GDP will be of EUR 219 billion and by 2030 of EUR 280 billion, at constant prices. The GDP aggregates remain as previously stated.

The current pandemic will last longer than expected

Should the pandemic last for another 2 quarters that is by Q1-2021, it can be assumed that the effects will be seen in the following quarters as well since most of the economic activity will have to suffer. Nevertheless, this scenario outputs a negative growth rate of 2.44% in 2021 and a strong rebound of above 4% in the following years except for 2029. Consequently, Debt to GDP would increase sharply while the country would increasingly focus on imports rather than exports. In this case, the budget deficit would be expected to rise even more, employing a higher financial stress on how the government invests in critical, proven to be beneficial, outputs.

What a V recovery means

A V-scenario represents a very quick and sharp recovery of the economy. In a best fit model, Romania would be expected to grow by 1.84% in 2021, followed by above 4% changes in the following years, averaging at 3.99% by 2030. In this case, Debt to GDP is still expected to be on an upward trend but with lower percentage changes.

A W scenario

In the scenario where an economic shock is triggered by the effects of the Covid-19, GDP will contract by 0.4% in 2021, reaching EUR 167 billion at constant prices. Debt to GDP will swing to 61%, followed by a downward trend unable to go lower than 57%. Even though the imports and exports will increase relative to GDP, Romania will have a negative trade balance, falling in line with the already existing trend. Based on this scenario, if an economic shock was to happen, it would hinder growth for another 2 years, reaching a potential GDP of EUR 229.94 billion in 2030, at constant prices.

Discussion

To join to the Euro area, a country must comply with 4 convergence criteria. It must achieve price stability, meaning the inflation rate cannot be higher than 1.5% above the rate of the 3-best performing member states, have sound and sustainable public finances, with a government deficit lower than 3% relative to GDP and debt lower than 60%, have stability in terms of exchange rates, by participating in the exchange rate mechanism (ERM 2) for at least 2 years without strong deviation from the central rate and without currency devaluation against EUR, and have a long-term interest rate not higher than 2% above the 3-best performing countries.

Base case

Even though all factors cannot be included, possible recommendations can be stated aimed at helping policymakers in their decision making. For the base case, an increase in healthcare efficiency could lead to easier access to sanitation, medical services and an increase in the standard of living. What the tradeoff would be will not be discussed in this paper.

Pandemic lasting longer

In this scenario, the economic pressure would accumulate even more. It could be assumed that the public deficit would have to suffer along with gross debt to GDP. A way of dealing with this impediment is issuing bonds, which historically is what happened in 2009-2010 and 2012. A drastic, perhaps as a last resort, solution would be austerity measures and the restructuring of the governmental apparatus. It is likely that an extended economic distress would significantly alter the long-term vision of Romania, thus, policy makers should be prepared to act accordingly through ways of stimulating the private sector or invest in capital goods that increase the competitivity relative to the international environment.

V

A V-shaped recovery implies a strong rebound of the economy. Therefore, the policy makers should account for the correction of an extremely high growth rate and whether it can be sustainable for the future or not.

W

A W would likely have drastic effects over the economy as the scenario in which the pandemic lasts longer. But countries sometimes are slow to enact changes. In this case, the policy makers should consider a potential risk and shouldn't blindly make decisions without considering the world or regional context.

Conclusions

As the events unfold, Romania is dealing with a higher degree of uncertainty. In such times, decision making with respect to spending, be it consumption or investment, is done in the context of expectations conditioned by the uncertainties of future outcomes. In a Keynesian view, macroeconomic decision makers should correct market dysfunctionalities by building a favorable entrepreneurial environment when dire events occur to stimulate economic growth and to restart the economy. At what cost, however, is a different topic. When correcting these market dysfunctionalities, it is expected that the benefits brought by such decisional outcomes

should outweigh the cost of making them. Should they be made irrationally, the consequences would be more severe and affect all economic agents more profoundly.

Hence, there is a societal responsibility embedded in all of us to push for a more preferred outcome over time, to exert our right of creating beneficial environments that first rely on individual sustainable decision making and only after on other stakeholders that are bound to create such conditions. Historically, the above average growth impetus has been the absorption of convergence funds, inflation targeting policies, a higher degree of stability over time and an increase in overall consumption. If the trends continue as they currently do, Romania will still have an above average economic development with the concern of an increasing public budget deficit, a concern that might be beneficial in the short-term, detrimental to long-term sustainable development.

With current available data, the 2020 GDP will be of EUR 167 billion, an EUR 10 billion decrease from 2019, followed by a strong rebound in 2021 and reaching a potential GDP of over EUR 50 billion per quarter at 2010 prices by 2030. It is with certainty that such a development would allow more sustainable goals to be implemented and bring Romania closer to their achievement, however, they will not be achieved by 2030.

What is yet unclear is if certain stakeholders will make appropriate decisions to edge closer to European averages in terms of sustainability. One example of this is the potential increase of public pensions by 40%. Considering the urgent need of short-term liquidity, the negative current account balance, an increasing debt to GDP and an exploding budget deficit, a decision to implement the aforementioned would be damming for real development. It would not only hinder the respective, but it would severely affect the society since that amount of liquid securities would have to either be cut from other sectors such as education, public health or infrastructure, paid through the issuance of bonds or loans from other international institutions. Should the first case occur, lower investment in education will affect future generations through the quality of education provided, inadequate medical facilities, which Romania has already been criticized for, and a lack of capital goods that have a direct impact on how efficient logistical operations can be and not only. These issues would apply more pressure over the economy, and thus, it would be more appropriate to first rely on self-sustainability and only then on other stakeholders.

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REGIONAL PLANNING FOR RODNA AS A TOURIST DESTINATION

ADELINE-CRISTINA COZMA[1], MONICA-MARIA COROŞ[2]

ABSTRACT. This paper continues previous researches dedicated to highlighting the importance of planning from a managerial point of view and to discussing the regional dimension of planning, to which it adds up the current topic, that of rural tourism planning – features, particularities, approaches, multi-functionality of land use, collaboration and partnerships, negative planning, green economy, and case-studies. Bearing the theory in mind, a radiography of Rodna commune was briefly made, taking into consideration the following aspects: economy, locals, tourist flows, accommodation, tourists' profile, food services, accessibility and transportation, travel agents, attractions and heritage, types of tourism, IT & C, sustainability, and traditions. The reason for the description of the commune is to properly understand the context and the particularities of the analyzed destination. Further, the steps of regional planning are revealed, and each of them is separately discussed and analyzed, from both a theoretical and a practical point of view. The outcome is a strategy the community can adopt, with a vision, three directions, and several SMART objectives. This strategy is reflected in a document that aims to engage each stakeholder in the process, as well as to establish in a clear, comprehensive way the common framework. Also, there are several proposals for every community and destination that understands the importance of planning and its implications: collaboration, win-win approach, partnerships, the involvement of the community, sustainability in every dimension, and so on.

Keywords: *Regional planning, Mountain tourism, Rural tourism, Community, Planning stages, Objectives, Collaboration, Strategy, Destination management.*

JEL Classification: L83, Q01, Z32.

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Introduction and Literature Review

The paper aims to create an example for rural tourism planning, focusing on creating a strategy for Rodna Commune. In 2018, a previous research discussed the potential and opportunities the area has and identified the need for creating a Destination Management Organization (DMO). Two years later, another research paper provides the framework for the creation of the DMO, by presenting a comprehensive guide with all the steps that should be made and the need for a proper website. But one important role of this DMO is to develop an integrative strategy for tourism development, and that is what this paper is about: the description of a regional planning process in a rural, mountain area, which focuses on sustainability and durable growth.

Rural tourism presents some particularities worth mentioning:

- the level of physical plant transformation;
- issues of authenticity;
- maintenance of traditional lifestyles;
- community values, etc. (Gartner, 2000).

Fan & Yang (2011) also highlight some features of rural tourism:

- the uniqueness of the resources;
- the diversity of space-time;
- the richness of cultural heritage;
- the self-experience and the self-participation in the main activities.

If market awareness is what rural communities strive for, there are several approaches they can undertake. Lew (1989) resumed these approaches, splitting them into 3 big categories: *unplanned*, *thematic*, and *historic preservation*. The highest level of economic impact results

from the *unplanned* option. This is because the *unplanned* option refers to attracting customers from the surrounding communities because of the presence of large retailers. But the long-term socio-cultural impacts can turn out to be extremely high because there is no sense of place for residents. In this case, tourism is not viewed as a vital component for local community development, because tourists are only attracted to the area for the same reason as rural residents are – to purchase needed goods.

In the opposed pole, the tourism centred type is the orientation towards *thematic* development. This means, it uses a central theme to organize its' community look. Of course, for this to happen, communities need to impose some design standards on local businesses. The socio-cultural impacts can be also high if the theme is not authentic (e.g. a Northern woods location which uses an alpine theme). But the economic impact can counter that. If the *thematic* development attracts many tourists in the area, it will increase the economic returns of the community. But the economic impact would still be lower than that generated by the *unplanned* orientation.

The last development orientation is *historic preservation*. If the community has some historic past which can be attractive for tourists, the socio-cultural impacts can be lower. By using what already exists, such as architecture or important sites, a strong sense of place and community pride can be achieved. However, the economic impact is lower than that resulted in the previous cases.

The importance of choosing the development orientation is given by the fact that "the nature of physical development is such that once mistakes are made, they will pose problems for the years to come. Development is often unidirectional with costs of re-development so high that they generally only occur when markets have eroded. Much more work on the development orientation and its consequences is required to guide future rural community tourism development" (Gartner, 2000).

Another important aspect in rural development planning is the multi-functionality of the land use. The rural space can be perceived as the area where residents live in and depend on. Rural farmers depend very much on the land, as this has direct impacts on the production capacity. Studies have shown that rural land, infrastructure construction, transportation, and public services positively impact farmers' quality of life. That is because when farmers benefit from higher quality land resources, they receive grater benefits. The concept of agricultural multi-functionality

was proposed by international organizations in 2001. Research studies on this topic have spread from the field of agriculture to various others. We discuss about multi-functionality of land use when we consider the interaction between all the types of land use. But it is not only about that, but also about the products (goods and services) that the land provides for the residents. Therefore, we can talk about land use versatility and interdependency. (Wan, et al., 2020). It is essential to establish the optimal balance between the tourism field and the agricultural fields, as they can represent threats for each other if they are not developed in a coordinated and sustainable way. The combination between agriculture and tourism can give the community really high benefits and the two fields can sustain one another, or it can result in severely affecting the quality of life and the living standards by destroying the agriculture if the tourism development reaches a certain unsustainable level, and therefore important touristic resources are destroyed, so the tourism activities will decrease considerably.

Land use planning is part of the public planning made by the local governments. Of course, the national government's plans and actions have a considerable impact on such areas. But there are some significant differences between these two levels of governance. "Clearly, a great deal of deliberate preparation for decision-making in government is done informally and without the direct aid of any planning personnel so-called. Many decisions by legislative bodies and administrative agencies in the smaller local units are naturally made based on immediate knowledge and perhaps intimate understanding possessed by local board members and line officials' themselves" (Clarenbach, 1952). This is important to understand the mechanism of rural planning.

But rural tourism also plays an important role in green economy. Mukhambetova, et. al (2019) define this concept as being "a system of economic activities related to the production, distribution and consumption of goods and services that lead to increased human well-being in the long run, while not exposing future generations to significant environmental risks or environmental deficits". Practically, the definition is based on the sustainability concept: maximizing the benefits, while minimizing the negative impacts. The principles for green tourism are:

- make optimal use of environmental resources, the key element for tourism development;

- support the main environmental processes;
- promote the conservation of natural resources and biodiversity;
- respect the socio-cultural identity of local communities;
- help preserve their cultural heritage and traditional values;
- ensure viable long-term economic activity that provides social and economic equitable benefits for all parties involved, including tourist satisfaction, stable employment, and opportunities for receiving incomes and social services for host communities.

It can be deduced that collaboration and partnerships are so much needed. "Rural tourism partnerships (RTPs) are characterised by vertical and horizontal cooperation, reciprocal investments and exchanges of human, social and economic capital among two or more tourism stakeholders to solve a problem or create an opportunity that they cannot address on their own" (Saxena, 2013). RTPs need to be seen though the mobility concept, as a fundamental component of the everyday life, in order to better understand the context within RTPs operate and the influence that a range of mobility perspectives have on the actors' engagement or disengagement with this kind of partnerships.

One major actor is the local community. Souca (2019) ran a research on the rural communities in Romania. The author finds that Romanian villages have not achieved their full potential in terms of rural tourism offer, because of the poor involvement of the local community in the strategic tourism planning, and because of the changes in the tourists' behaviour. In urban areas, in response to these changes in the tourists' behaviour, a better form of cultural tourism has appeared: creative tourism. The study shows that not only the urban areas, but also the Romanian rural areas have residents that have the abilities necessary in developing creative tourism. The main conclusion in that to revitalize the Romanian rural tourism, the entire local community needs to be involved in the tourism planning process, not just the ones with direct ties to it.

Another study, authored by Gusmanov et.al (2020), focuses on the foresight methodology applied in the strategic planning of rural development. They say that it "will improve the quality of a decision-making process at the municipal and regional levels of government. It will become possible to develop in time measures aimed at reducing imbalance between different layers of rural residents, to reduce rural society stratification and to make odds even in the rural areas' society.

The use of modern foresight technologies together with the system analysis not only helps to quickly diagnose the current state of rural areas but also contributes to spot bottlenecks and to reveal problems in the system of strategic management of material resources, to model the adoption of optimal management decisions". Therefore, the results of the study can be applied in the strategic planning process for the rural development.

Fan & Yang (2011) discuss in their paper about negative planning. This means that when it comes to planning the land use, the land is perceived and considered as non-construction land, opposed to the traditional planning, which considers the land for construction. This shift and change in the paradigm strive for ecological environment construction and sustainability. To better understand the concept, they put together a table that shows the differences between traditional and negative planning:

Table 1. Comparison Between the Two Types of Planning

Comparison object	Traditional Tourism Planning	Negative Planning
Purpose	Using the rural tourism resources to delimit of construction land and meet the needs of developers and tourists.	With ecological value maximization for the purpose
Order	First planning construction land and then carry on ecological protection.	Priority was the planning of ecological infrastructure, the construction of landscape security patterns, construction land planning at the last.
Form	Each special planning is according to the project independently.	Make various special planning integration, delimit non-construction land for ecological zones control.
Function	Meet the developers and tourists' need, but not enough to protect the ecological landscape, causing damage.	Better protection of the tourism resources, make the ecological landscape resources sustainable development.

Source: Fan & Yang (2011) p. 907

The main conclusion of the same study (Fan & Yang, 2011) was that negative planning in rural tourism development is the key to harmonize the social economy and the eco-environment, so the sustainable development will take place.

Three remarkable case-studies on rural tourism planning highlight the way in which it is done in different countries: Ireland, Malaysia, and India. In Ireland, "at national level, rural tourism planning involves the coordination and management of large tourist regions, usually through the development of policy national standards and institutions. These plans will include national level implementation techniques, development staging, with both short term development strategies and project planning" (Robinson & O'Connor, 2013). In India, in the rural areas that have tourism potential, the government develops the necessary infrastructure and they also benefit from the support of the Ministry of Tourism. The strategies for rural development aim at showcasing the rural life, art, culture, and heritage, in order to benefit the local community in an economic and social way, and also to support the interaction between the locals and the tourists. If Ireland is focusing on funding, and in India the public authorities take a lot of responsibility for the rural tourism development, Malaysia is counting on the local community to be proactive: "without the fluent and eager participation of the local people, it is quite a tough job for the government agencies, NGO's or other local-international organizations to carry out the project effectively and successfully. With the dynamic concept of inclusive rural tourism and ecotourism, Malaysia can successfully conserve the natural heritages, environment and biodiversity" (Majid & Zaman, 2018). The conclusion here would be that depending on a very wide range of factors (resources, political regime, culture, history, etc.) and on the macro- and micro- context of the destination, the way in which the rural tourism planning is done and the paradigms and methods applied should be fully adapted to its specificity.

Therefore, some essential information about the destination should be mentioned before presenting the developed strategy of the commune.

Material and Method

The paper aims to create an example for rural tourism planning, focusing on creating a strategy for Rodna Commune. In 2018, we have shown the potential and opportunities the area has, and we identified the need for creating a Destination Management Organization. This year, we have shown how to create that DMO, by making a comprehensive guide with all the steps that should be made as well as explaining the need for

a proper website. But one important role of this DMO is to develop an integrative strategy for tourism development, and that is what this paper is about: the description of a regional planning process in a rural, mountain area, which focuses on sustainability and durable growth.

Some results of the previous research are discussed here, mainly in presenting the actual socio-economic context of the commune. The methods used were:

- the analysis of secondary data by consulting different statistics, brochures, guides, specialized sites, comparisons, syntheses and analogies, and also reaching to local authorities, managers of lodging units in the commune, participation in different conferences on rural tourism issues and the elaboration of questionnaires that aim to identify the reasons for the tourists to visit Rodna Mountains National Park;
- combining quantitative research, based on questionnaires with qualitative research, based on interviews.

The methods used in order to develop this plan are secondary data analysis (synthesizing information, processing different statistics, etc.), and induction and deduction, which contribute to the interpretation of the actual situation, and also to the identification of possible future results if the developed plan would be implemented.

Results and Discussions

This section will detail the sustainable development plan for Rodna commune, which takes into consideration everything discussed before: the need for planning, how the planning is done depending on the object of planning, why rural planning is important and vital for a durable development of the area, the history of Rodna commune, the actual social-cultural-economic context of the commune, and, of course, the results of the previous research that lead to drawing up this plan.

1. Destination Management

The second bachelor thesis (Cozma, 2020) discusses the need for a Destination Management Organization, (DMO) it was showing the way in which this type of entity works and how it contributes to a better,

healthier development. The identified structures that should be involved in the activity of the DMO are:

- the Town Hall;
- County Council;
- Police, Firefighters, Mountain Rescuers. Health Services;
- Accommodation units' owners;
- Restaurants and bars owners;
- Local producers;
- Artisans, dancers, etc.

The main activity of a DMO is to promote the destination by re-joining the forces of all the stakeholders. But to do so, a strategic plan ought to be drawn.

2. Regional Planning Process

Such a process must respond to certain questions:

- What are the factors that led to the actual situation?
- Which is the desired direction?
- What are the parameters of success?
- What are the risks and limitations?
- What actions must be taken to achieve the goals?

To do so, the process of regional planning needs to follow several steps:

- Vision setting & preparation;
- Formulation of planning objectives;
- Data gathering;
- Analysis and interpretation;
- Generation of alternatives for the preliminary plan;
- Consultation and formulation of the plan;
- Implementation;
- Monitoring & assessment of outcomes.

Each of these steps will be further presented and discussed.

Data Gathering refers to the collection of relevant data that could be used as a reference for the destination analysis and planning. This step was completed in the previous research when the radiography of the

tourism activity in Rodna commune was done. From analysing data offered by local authorities, to interviewing the entrepreneurs of the lodging units, the locals, and public authorities (the mayor, the Rodna Mountains National Park administrator), to capture the opinion of the mountain tourists by applying a questioner, and to search, read and synthesize other valuable researches and data (books, articles, statistics, etc.), all of these led to a proper data gathering which enabled the research to go further.

Worth mentioning here are the regional and national strategic visions, because all the efforts should be aligned with the actions taken at macro-level.

Bistrița-Năsăud established 4 directions for future development:

- Pillar 1 – Increasing the economic competitiveness of the region and stimulating research and innovation;
- Pillar 2 – Increase the region's accessibility, mobility of inhabitants, goods, and information;
- Pillar 3 – Increasing the quality of life of the inhabitants of the region;
- Pillar 4 – Protection of the natural and anthropic environment, efficient use of resources and reduction of polluting emissions.

For tourism, the strategy includes only a presentation of the actual context and some ambiguous phrases: "The challenges for 2020 are in the sustainable development of spa, cultural, and mountain tourism". The fact that mountain tourism is mentioned can bring some hope.

The vision at national level is: "Turn Romania into a quality tourism destination based on its natural and cultural heritage that meets European Union standards on the delivery of products and services and to achieve environmentally sustainable development of the tourism sector at a pace development of other tourist destinations in Europe". Sustainability and European standards are the key concepts that link the vision at the national level, to the one of the destinations.

The scope of the next phase, *Analyses and Interpretations*, is to analyse the data collected before and to provide guidance and reference to assist the planning process. It represents a meaningful interpretation of information and data gathered in the decision-making process.

The collected data should be brought together, and some considerations need to be made, in order to establish the relations between the elements, to understand the views from different stakeholders engaged and the assessments of carrying capacity, and to provide internal and

external analysis, in the form of PESTEL or SWOT analysis; the latter was chosen for the paper. This should result in determining the future position on the market.

The SWOT analysis concludes and synthesises the considerations made in previous research or earlier in the present paper (see table no. 2).

If the results from the analysis suggested that there are inappropriate or unachievable objectives for the destination, they should be reviewed, and a return to the second stage need to me made, to formulate a new set of planning objectives. But this is not the case, because the data gathering, and part of the analysis and interpretation were chronologically done before setting up the objectives.

Table 2. SWOT Matrix Analysis and Interpretation

		Strengths	**Weaknesses**
		-the possibility of rehabilitation of parental homes -high quantity of land available for tourism -proximity to the Rodna Mountains National Park -attractive tourist attractions (catacombs, fortified church, etc.) -diversity of tourism activities (winter sports)	-resources have started to degrade; they are not properly maintained -the ability of locals to individually attract funding is extremely low -poor infrastructure (road, trails, accommodation units) -non-existing marketing
Opportunities	-tourist demand development -starting the infrastructure improvement works -the opening of a skiing area (22 km) -awareness of the tourist potential of the area by the regional authorities and launching projects to support the promotion of tourism in the area (currently the road infrastructure and the ski area)	*Agreement – SO Strategies – transformation of the resources:* • attraction of investments in tourism facilities (because of the rising demand, the improvement of the infrastructure and the available resources)	*Constraints – WO Strategies – redirecting resources:* • focus on improving the infrastructure (especially trails) • development of a marketing plan • proper maintenance of the resources (motivating factor: raising demand)

		Strengths	Weaknesses
Threats	-unstable legislative framework -difficult access to regional and European funds -illegal deformations that can lead to damage to the Rodna Mountains National Park ecosystem -high risk of avalanches, fires, floods	*Vulnerabilities – ST Strategies – diversification of activities:* • stricter regulations (and higher sanctions) to protect and conserve the Rodna Mountains National Park • efficient risk management plans	*Problems – WT Strategies - avoiding the conditions in which the weaknesses are preponderant:* • training and consultancy for those who want to attract funds • incentives for those who want to invest to compensate the unstable legislative framework

Source: Authors' own data processing

The *Development of the Strategic Vision* results in an initial picture of the general physical environment and the current development of tourism at the destination. The vision must take into consideration options and scenarios of tourism development based on relevant economic-environmental-social-cultural-institutional elements and it has to provide continuity and consistency to the process.

For this first step, it is necessary to analyse the existing tourism attractions, as well as the touristic offer.

As previously discussed, the list of touristic attractions includes:

- Rodna Mountains National Park;
- The Ethnographic and Mining Museum;
- The ruins of the medieval fortified church, the Romanesque basilica dating from the beginning of the 13th Century;
- The catacombs that cross the whole Rodna village, in which hundreds of people died during the Tatar invasion in 1241;
- Old mines in Valea Vinului village;
- Valea Vinului Writers' House where Lucian Blaga, Mihail Sadoveanu, Liviu Rebreanu, George Coşbuc (Romanian writers) and many others used to spend their holidays;
- Someş River crosses Rodna village, while Valea Băilor crosses Valea Vinului village.

The supply side comprises the following:

- Accessibility: by car (17D route) or by bus from Bistriţa or Cluj-Napoca;

- Accommodation: 4 functional lodging units (a hotel and a boarding house are not in the business anymore; one boarding house functions only with closed circuit – property of Romsilva); 72 bed places in total;
- Leisure activities and entertainment (according to the interviews with the entrepreneurs): hiking, birdwatching, off-track cycling, a little bit of haunting, as well as carriage rides in winter.

The general aspect is of a destination characterized by: poor economic development, mostly exploiting forests activities (cutting trees), with no accredited public food unit, beautiful landscapes, and pure air.

After analysing these two essential, fundamental aspects, the vision can be establish: **to develop the commune in such a way that it will be seen by tourists as a place where they feel like going back in time, but without compromising the modern quality standards for all the touristic factors, and respecting all the sustainability principles in order to obtain a durable long-term development**.

Formulation of Planning Objectives is the next logical step; it considers the more specific objectives of the plan, which are central to developing the strategy, as they state the desired results. They need to be comprehensive and specific, supporting the vision. Also, they do not need to focus only on the tourism sector, but to consider how tourism could link with other sectors and contribute to the wider goals of sustainability.

The objectives are divided into 3 categories: infrastructure, marketing, and rehabilitation. These three directions address the three major problems: poor touristic infrastructure, lack of awareness, and heritage degradation (and therefore the degradation of touristic resources, as well as of some nice pieces of history). Then, each of the three objectives are divided into other tactical objectives. They respect the principle of SMART (Specific, Measurable, Achievable, Realistic, Timebound) objectives.

Objective 1: Infrastructure

- Improving the road accessibility and infrastructure (by forming IDAs - Intercommunity Developing Association to consolidate the roads Maieru-Anieș-Rodna – 17D, Rodna-Măgura Ilvei – 172 J, and Ronda – Cârlibaba – 17 D) – deadline: 2022; responsible entities: County Council, Town Hall, and Local Councils of the involved communities;

- Developing incentives and efficient programs for the companies that activate in the tourism industry (eg. free concession of the Townhall's lands, free business trainings focused on hospitality, etc.) – deadline: 2021; responsible entity: Town Hall;
- Build a touristic centre in Valea Vinului village – deadline: 2021; responsible entity: Town Hall;
- Help the Administration of Rodna Mountains National Park to properly mark the hiking trails (more signs, better positioning) – deadline: 2020; responsible entities: Mountain Rescuers, ARMNP;
- Help the ARMNP to create and homologate new and interesting routes (a rise of minimum 5% from the 405 km of the 22 existing routes) – deadline: 2020; responsible entities: Mountain Rescuers, ARMNP;
- Collaboration with Natura2000 for creating cyclo-tourism paths – deadline: 2021; responsible entities: ARMNP, Mountain Rescuers, Natura2000;
- Create and co-fund with ARMNP a project for building infrastructure for equestrian tourism and attract one or multiple investors – deadline: 2022; responsible entities: ARMNP, Town Hall.

Objective 2: Marketing

- Create a budgeted marketing campaign – deadline: 2020; responsible entities: ARMNP, Town Hall.
  And only after that:
- Create a website for tourists with excellent SEO (like VisitCluj or VisitAlba) – deadline: 2020; responsible entities: all stakeholders;
- Social Media Channels presence (e.g. Facebook, Instagram, TripAdvisor, etc.) – deadline: 2020 and then create meaningful content; responsible entities: all stakeholders;
- Media appearances (e.g. invite journalists to promote the beauty of the place) - as soon as possible and continuous; responsible entities: all stakeholders;
- Online presence of the Ethnographic and Mining Museum – deadline: 2020; responsible entities: Town Hall, the Museum;
- Online Ad Campaigns (e.g. Google Adwords, Facebook Ads, etc.) – as soon as possible and continuous; responsible entities: all stakeholders.

Objective 3: Rehabilitation

- of the old church in Rodna village – deadline: 2022; responsible entities: Town Hall, the local parish;
- of the catacombs in Rodna village – deadline: 2023; responsible entity: Town Hall.
- of the mine openings in Valea Vinului village – deadline: 2022; responsible entities: Town Hall, EM Rodna;
- of the Valea Vinului Writers' House – deadline: 2021; responsible entities: Town Hall, the Writers' Association of Bistrița-Năsăud;
- of Baia lui Schneider (Schneider's Bath) Cave, and development of a path from this cave to Poiana cu Narcise (The Meadow with Daffodils) – deadline: 2021; responsible entities: ARMNP, Mountain Rescuers.

Generation of Alternatives for the Preliminary Plan covers the next stage. It is exceedingly rare to have only one scenario that could meet the development objectives for a destination. The best approach is to prepare and evaluate alternative development scenarios. The factors when outlining and selecting alternatives are:

- The potential economic benefits generated by each alternative;
- Whether there is appropriate community involvement;
- Whether each alternative promotes a balanced development at the destination.

Special attention must be payed to physical solutions, development scale, legal requirement, specific actions, timescale, and financial plans for each objective. The result should be the selection of the preferred scenario and formulation of the preliminary plan.

In the case of Rodna, there is a high potential for primary livestock production (wool, meat, milk), and a moderate potential for primary food (fruits, berries, vegetables). This can help the economy of the commune. The opportunity here is an association that would help in distribution, but also in acquisitions, for a bigger purchasing power. All these represent great assets for agro-tourism, responsible tourism, community-based tourism, and sustainable development of the tourism.

In the *Consultation and Formulation of the Plan* step, the preliminary plan should be drawn and a wide public consultation about it should be organized, if it was not organized before. The most valuable benefits of

this consultation are the opinions and the feedback from the groups not involved before. When reaching the point where there are no significant contradictions, the final plan should be made. It must include definitions of technical terms, land use (zoning policy), infrastructure and facilities, timetable, and estimations of costs for the development. After that, the final plan should be approved, and legal basis must be established.

The outcome should include physical spatial definitions and plans, the responsibilities of stakeholders, the distribution of benefits from tourism.

In the present case-study, only theoretical aspects can be discussed, because there is no possibility of organizing the consultation, neither to make professional and technical plans for the land use and other aspects that need the work of an expert.

Anyway, the event can take place at Rodna Cultural Centre, as it has a decent event hall and the participants should include:

- members of the Town-Hall (including the Mayor);
- members of ARMNP (including the president of the administration);
- entrepreneurs (from hospitality, wood, agriculture, primary livestock, and other industries);
- locals (doctors, teachers, priests, students, youth, employees, retired people, persons with disabilities, etc.);
- local authorities (police, health services, firefighters, mountain rescue department) – for risk analysis;
- regional authorities (including the president of the County Council);
- specialists and experts (in tourism and regional planning).

After the event, the feedback and the opinions of the participants must be included in the final plan and a report containing all the pieces of information should be drawn up.

The *Implementation* techniques should be specified in the approved plan and, obviously, applied. Anyway, the implementation should not be considered only at the 7th stage, but through the whole planning process.

For Rodna, the implementation refers to:

- Evaluating financing options and choosing viable ones;
- Creating a DMO (Destination Management Organization) to coordinate the entire plan and to keep all stakeholders together (better communication, centralized information, etc.);

- Celebrating the results (events, galas, etc.);
- Permanent brainstorming for new sustainable ideas;
- Continuous actualization of the strategic plan.

Monitoring, the final stage of the regional planning process is monitoring, and it refers to the mechanism of monitoring, which provides feedback, which can be used in the evaluation of actual results from implementation.

The practical outcome of this stage consists of periodic reports that aim to provide a record of implementation by working with the stakeholders. It results in improving the actual outcomes and determining the objectives for the next planning period.

Practically, this will resume in:

- Quarterly meetings to evaluate the actual stage and to propose improvements or solutions if necessary, as well as making reports after each meeting (written by the DMO) regarding the outcomes of the meeting;
- Results presented every year by the DMO in a public, local conference, correlated with the initial objectives from the plan and with the quarterly reports.

After considering this entire process, with all its steps, their importance and their scope, and also the practical aspect of each of them for the sustainable development of tourism in Rodna, the most valuable and conclusive part is the final document, which represents the outcome of the whole process.

Conclusions

The first part of the article explained the crucial importance of planning and showed its benefits for the tourism development, especially when sustainability is desired. The case-study presented the situation of an undervalued community, where mining was the primary source of income, and where another industry must grow, to at least maintain the living standards. In a previous research, the radiography of the commune from demographic, economic, social, cultural, environmental points of view was done and it was shown why tourism is the best alternative for the growth of the commune, as well as its implications and benefits.

The value of this paper comes from sketching a plan for Rodna commune, which brings a vision, three development directions, and several SMART objectives into discussion. Stakeholders and partnerships, collaboration, focus-groups, and meetings play an essential role in the success of the plan. Moreover, implementation, monitoring and control are considered.

The outcome of this process is represented by the final plan, which analyses, discusses, summarises, and concludes on each step in the process. Its purpose is to make each stakeholder, regardless of one's interest or level of education, which is the common vision and which are the directions and objectives everyone should assume and keep in mind when taking individual or common decisions. It can also determine the players in the industry to collaborate more, than to compete against each other in an aggressive way, and understand that having a bigger slice of a smaller cake is not as good as having a big slice of a much larger cake. In a nutshell, having a common framework can make everyone understand that by collaborating, and by applying a win-win strategy, the benefits for every individual party will be higher. But without this common framework, collaboration is at least extremely hard to be obtained, if not impossible.

In terms of proposals, the main one is to address the issue of destination management in the meeting of the Town Hall, to fund, and to point someone to do the work. Of course, a Destination Management Organization represents the most efficient solution, because: it has a direct interest in the results of the planning process; it can implement, monitor and control the process; the funding is split between the public and the private sectors; the collaboration between public and private sectors brings synergetic benefits to the whole community. The subjectivism can represent a limitation, but it fades away in the light of all the benefits stated before, and the fact that the stakeholders have the most valuable knowledge about the particularities and specificities of the place.

The second one is to always consult with the community. No plan that includes multiple players and affects a wide mass of people should be approved without consulting them first. The vulnerable categories should be included: people with disabilities, elderlies, etc. The feedback from them should always be taken into consideration with maximum seriousness and integrated into the final plan. Also, they should always be informed about the stages and results of the actions in the plan. Celebrating the results and all the people involved in the process can represent a major motivator and a key for success.

The final proposal regards the concepts that should always be in everyone's mind when taking actions and making decisions. Besides collaboration and the win-win approach, sustainability is mainly about the environment, but there are also other important dimensions: economic, cultural, social, policy, managerial, and political, that should not be overlooked.

That is why *today* should also be about … planning for a brighter *tomorrow*!

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SUPPORTING LEAN CONCEPTS IMPLEMENTATION IN SMALL MEDIUM ENTERPRISES (SMEs): A CASE STUDY FROM THE ROMANIAN INDUSTRY

VLAD TOMUS[1], EMANUEL-EMIL SAVAN[2]

ABSTRACT. This paper proposes a solution to the fundamental problem of maximizing productivity by reducing the costs in a small sized manufacturing company. The steps taken in tackling this commonly faced issue are prompted by the review of existing literature on Lean and Just in Time manufacturing, some of the concepts being first introduced at Toyota in the 20th century. The approached case study is based on a small manufacturing company of P.V.C. related products. Both qualitative and quantitative aspects are taken into account when analyzing the implementation of the proposed management process e.g. number of employees directly involved in the manufacturing process, relationship with suppliers, sales, inventories, incomes, expenses (up to 60 months of historic data). For providing an insight into expected future sales, this paper conducts a detailed time series analysis. In developing the forecasting model, three smoothing methods have been tested: simple moving average, autoregressive integrated moving average (ARIMA), and exponential smoothing. Also, different regression models have been considered e.g. simple linear and polynomial. Simple linear regression was considered to provide the best balance between model complexity and the accuracy of the predictions.

Key words: lean, just-in-time, time series analysis, forecasting, simple moving average (SMA), autoregressive integrated moving average (ARIMA), exponential smoothing

JEL Classification: C22

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Introduction

Striving for perfection in any manufacturing process implies a complex path of continuous improvement, minimizing errors, and a combination between great management and a well-trained, motivated workforce. Even though achieving perfection remains an unattainable objective, the most important aspect for any organization is the process, and steps taken, towards this strategic goal. This involves the proper research, knowledge, motivation and patience, but also a well thought out plan involving organizational, tactical and operational goals at each step, and going through the tiresome process of trial and error, using the feedback acquired in the purpose of gradually correcting the mistakes each step of the way.

Even though the philosophy of continuous improvement presents many advantages, its implementation represents a complicated path, especially in a small company with a hard to change culture. Several theoretical aspects must first be addressed and understood, such as: the foundation of Lean and Just in Time manufacturing and why it has worked so flawlessly for Toyota, means of eliminating costs, finding a way to reduce inventories as close to zero as possible, the relationship the company should have with its suppliers and so on.

Following a detailed research, a broad understanding of the company's culture and manufacturing process is required. Even though the method of Lean manufacturing can introduce many advantages, if the philosophy is not accepted by the management, or cannot be transferred to the employees, it will not be implemented. Change management can prove extremely problematic; for certain employees that have worked for a long time in a specific manner following strict rules or guidelines, change can definitely represent an impediment in their workflow.

For this step, qualitative and quantitative data is gathered through primary research. Ultimately, an analysis is made to find the optimum solution of implementing all of the research done within the company in a

manner tailored for this specific organization. Furthermore, some forecasting models are developed using: simple moving average, autoregressive integrated moving average (ARIMA), and exponential smoothing.

Literature review

Improving the manufacturing process within a company has been an existing problem since the beginning of the first industrial revolution in the XVIII century to the present day. For solving this problem, solutions have been addressed by various companies through trial and error, with the scope of finding the perfect balance for optimizing manufacturing and reducing costs, according to the needs of each entity. This is precisely the problem that is addressed in this research, shaped according to the needs of the company.

The roots of the Toyota Production system date back to the beginning of the 20th century when the company first appeared, being funded by Sakichi Toyoda (Monden, 2012). Sakichi Toyoda was working at that time in a textile factory, in which he invented a motor-driven loom that was programmed to stop when a thread broke. In 1910 Toyoda visited the United States, where he became fascinated with the autonomation that he has seen at Ford Company, which in 1913 has introduced the serial production of its automobile from the time. In consequence, when Toyota Motor company has started its production, Kiichiro Toyoda has decided to implement the system witnessed in the United States, which marked the beginning of a well-lasting, prosper company (Monden, 2012).

Ever since the oil shock in 1973, a slow adoption process of Toyota Motor Corporation's J.I.T. system has started to appear in companies all over the world, due to its huge success in achieving its purpose, which is the elimination of waste through the improvement of various manufacturing related activities (Monden, 2012).

After Toyota's success in implementing „Lean", the concept has expanded to America when the opening of the joint venture between Toyota and General Motors occurred, and from that point it has expanded worldwide, impacting in one way or another on small ventures (Pearce et al., 2018), to giants such as Nike (Riddle, 2016) or Intel (Panat et al., 2014).

Reducing costs for the purpose of maximizing profit may be achieved through two main courses of action: the reduction of excessive inventory, or the reduction of excessive workforce. For the cost reduction process to achieve its maximum positive outcome, Toyota made it clear that all of the cost generating factors should be taken into account, not only the manufacturing ones. Those costs may also include sales costs, administrative costs, and capital costs (Monden, 2012).

The Toyota Production System follows the principle that waste should be completely eliminated in order to achieve maximum efficiency in the cost reduction process (Stevenson, W., 2012). It is essential to state that, if deciding to follow this course of action, a company may expose itself to a number of risks, especially if the company is a small-sized enterprise and the management does not possess the necessary technical and administrative skills. Excessive resources indeed represent a liability, but not being able to put a system into place that has a fail-safe may expose the company to risks such as not meeting production targets, increased lead times, not meeting demand, or damage in the relationship with both the customers and the suppliers.

All of those wastes create a chain reaction, from the first one to the last, sustaining a vicious cycle that is maintained with the use of extra resources in order to keep the manufacturing process going, while at the same time adding no extra value to the company.

In addition to waste issues, the risk of overloading/ over-working the machines and the workforce, should also be taken into consideration. In the case of the machinery, overloading may cause certain defects such as the machine to break down and cause delays, or electricity shortages. In the case of the workforce, overload may lead to tiredness, lack of motivation, and even the desire to quit in some extreme cases (Domingo, n.d.).

When implementing a lean system, a few concepts that have their origin in the Toyota Production System should also be taken into consideration, and will be discussed below.

For a further contribution to the planning and control process of the facility, the implementation of a pull system such as the Japanese Kanban system can be accounted for. In Japanese, the origin place of where this system was created, Kanban means a card and it consists in attaching one to each container in the output store, but the number of the cards is limited, which helps in limiting the maximum number of

finished products in the system. When the container is withdrawn, the card is attached back to the scheduling board, and the process is repeated, controlling the quantities needed for the products (Matzka et al., 2009).

The Kanban system further contributes to the maintenance of Just in Time manufacturing through a series of factors. Firstly, by implementing it the smoothening of production occurs by fluidizing the workflow and reducing the time necessary for a process. Furthermore, the jobs are standardized, requiring less workforce and reducing costs but also in this way every employee knows how to flawlessly complete each job assigned to them and less training per employee is required. The setup time is also reduced due to the fact that the production process is standardized, less processes requiring special attention. An improvement in the activities will also be noticed, as well as the design in the machine layout and in the end, making it possible for the concept of automation described above to be implemented (Matzka et al., 2009).

To have a clear understanding of what a Kanban card is, Monden's description is an accurate one, stating that "it is a card that is usually placed in a rectangular vinyl envelope" (Monden, 2012). He further describes that there are two types of Kanbans that are used: a withdrawal one, and an ordering one, depending on the type of activity. The withdrawal Kanban is used to dictate the quantity that needs to be withdrawn from the subsequent process, while the production-ordering one is used to dictate the quantity that needs to be produced by the preceding process (Monden, 2012).

The Japanese concept of Kaizen embraces the idea of continuous improvement in the standard way of work, a factor that each employee can and should be encouraged to contribute to. The employees who form the standard workforce are the ones who directly contribute to the manufacturing process and the quality of the output, so they should be the ones who come with new ideas when it comes to identifying the flaws, and help in improving the manufacturing process (Chen, 2001).

Jidoka represents the concept of autonomation and using it separates the individual human activity from machine cycles, enabling each worker to attend several machines of different types that work at the same time. In turn, the output of each machine represents the input for the next one (Stevenson, 2012).

The pillars of the Toyota Production System are Just in Time and autonomation, which, combined flawlessly, can give any production-based company the necessary to gain the competitive advantage (Baudin, 2007). With the help of J.I.T. the necessary units are produced in the necessary quantity at the necessary time, resulting in the elimination of two types of waste: excessive quantities produced, and excessive time used for a process. This is a necessary step that must be taken for the inventories to be reduced as close to zero as possible. Even though this implementation sounds great in theory, an error related to anything taking part in the manufacturing process, such as in the assembly line, may have a significant negative impact within the company. This is where the concept of Jidoka (autonomation) comes in, which basically stops the defective units from a previous process to continue taking part in the assembly and disrupts the process that follows (Monden, 2012).

Another strategy of implementing lean manufacturing can be empathized through Rother and Shook's (2003) five step process of a lean:

1. Find a sensei (a teacher whose learning you can borrow).
2. Seize (or create) a crisis to motivate action across your firm.
3. Map the entire value stream for all of your product families.
4. Pick something important and get started removing waste.

Scientific research & Methodology

In order to understand how a company operates, and furthermore, to have a perspective on the possibility of implementing such a complex system can only be achieved through an internal insight of how the company works through the eyes of the management of the company by conducting a primary research. Two primary data collection methods were used for the gathering of data. Firstly, a phone interview has been conducted to receive a first-hand perspective over the operations of the company. During this interview information regarding the set-up of the company, the suppliers, the customers, and other general information was provided. The purpose behind the phone interview was to gain an actual insight within the company, form a perspective regarding its culture, get to know the management, its employees, and its assets.

Main objectives of the study:

- Get an insight regarding of how the company was formed
- Find what are the fixed and variable assets behind the manufacturing system
- Which are the company's suppliers
- What is the company's relationship with its suppliers
- In what manner do the employees receive special training to do their jobs
- Which are the company's clients.

Following the phone interview, more data was solicited through email, including quantitative data such as the company's sales, inventories, number of employees, and orders. Over 60 months' worth of data was sorted and analyzed to offer an insight into the company. One of the most important objectives of the interview was the gathering of data regarding the company's sales, which had to be evenly split on each month for a period of at least five years, serving as the basis of the forecasting models: the classical decomposition model, and the exponential smoothing model. The secondary objectives involved data gathering regarding the company's number of employees, number of clients, inventory value, income, expenses, and profit.

A Just in Time manufacturing system's main purpose is achieving maximum profit through the reduction of costs, and the maximization of productivity. When analyzing a microenvironment of small to medium companies that have the primary focus on manufacturing, they may not be aware of the potential uses of a J.I.T system (Knol et al., 2018). To find the most appropriate means to implement such a complex system, first of all, an overview of the company's management and of its orders must be forecasted. At this point, the subject of analysis will represent order management, the relationship with the suppliers, the payment and quantity of the orders.

In this paper several forecasting models have been adopted. In order to achieve reliable forecasts several approaches and methods have been tested: classical decomposition method, autoregressive integrated moving average model (ARIMA), and the exponential smoothing model. The forecasting models that were used for the analysis will be described.

In the model of classical decomposition, the time series is decomposed into four main components: trend, cyclicality, seasonality and irregularities (Dewhurst, 2006). Two types of models tested that exist within the technique of classical decomposition are the multiplicative and additive models (Ostertagová et al., 2012). For the purpose of this research, the methodology used will be based on the multiplicative model.

The model is split within four main components (trend, seasonality, cyclicality, and the irregular component), which are based on the following formula:

$$Y_t=TR_t \times SN_t \times CL_t \times IR_t$$

The components mentioned above have the following interpretation:

- Y_t - Value of the time series in the period t
- TR_t – Trend component in the period t
- SN_t – Seasonal component in the period t
- CL_t – Cyclical component in the period t
- IR_t – Irregular component in the period t

The data used for the model is selected on the monthly basis, and the moving average is then calculated on the respective period. Afterwards, a centered moving average is calculated using the formula

$$CMA_k=(MA_k+MA_{k+1}), \text{ for the period k.}$$

Exponential smoothing forecasting methods is the one most commonly used, making its first appearance in the 1950's, and it was developed by Brown and Holt (Ostertagová, 2012), who were trying to create a forecasting model for inventory-controlled systems, and its use is essential for predicting the minimum inventory levels that can be achieved, in order for a company not to suffer due to shortages of raw materials.

The method became so popular due to its simplicity, ease of use, and due to the minimal requirements for data storage and computing. The premise of the model is the level of a time series should fluctuate about a constant level or slowly change over time (Ostertagová, 2012).

The equation of the model is:

$$y(t)=\beta(t)+\varepsilon(t)$$

Significance:

- β(t)- takes a constant at time t and may slowly change over time
- ε(t)- random variable that describes the effect of stochastic fluctuation

When performing an estimation, using all past observations is essential. However, going further back in the past, a down-weighting older observation is a factor to take into consideration, due to the declining correlation.

Taking this into account, the equation of the simple exponential smoothing takes the following form:

$$F_{(t+1)}=\alpha y_t+(1-\zeta)*F_t$$

Significance:

- y_t - series value at time t
- F_t - Forecast value of the variable at time t
- F_{t+1} - Forecast value at the time t+1
- α - smoothing constant

The model is based on an initial forecast, an actual value, and a smoothing constant. (Ostertagová, 2012)

The autoregressive integrated moving average (ARIMA) model represents an alternative approach to the exponential smoothing model in the area of time series forecasting, providing alternative approaches in solving the problem. While ARIMA models focus on the autocorrelations in the data, exponential smoothing has its basis on a description of the trend and seasonal components. (Hyndman et al., 2018)

An ARIMA model has three main components at its core. The first one is the autoregressive (AR) time series model which is correlated to the past observation of the dependent variable in the forecast of future observations. The first-order autoregression model (AR (1)) is represented by the following formula:

$$y_t=ay_{t-1}+\varepsilon_t$$

Significance:

- y_t - the dependent variable,
- a - a parameter, y_{t-1} is a lagged dependent variable
- ε_t - the random or white noise term which represents a shock which cannot be explained.

The second component is represented by the moving average (MA) model, including past observations of the white noise process in the forecast of future observations of the dependent variable. The first-order MA model (MA (1)) is represented by the following formula:

$$y_t=b\varepsilon_{t-1}+\varepsilon_t$$

Significance:

- b - the parameter
- ε_t and ε_{t-1} - the forecast error and the lagged forecast error, respectively.

The combination of the two models MA and AR generates the ARMA model, which is stationary. If the data used is nonstationary, a third component has the purpose of converting the data to achieve stationarity through the process of differentiating (integrating (I)) the original series, which according to Rohrbach and Kiriwaggulu (2001), and Nau (2018) is represented by the following formula:

$$y'_t=y_t-y_{t-1}$$

Significance:

- y'_t - the future consumption
- y_t and y_{t-1} - the original series and lagged original series, respectively (Mgaya, 2019)

Case study

The analyzed company was founded in 2001, it's domain of activity being centered around the fields of construction, execution and installation of P.V.C. and aluminum joinery, carpentry maintenance and repair services. Among the assets of the company there is a production hall and a warehouse, two transport vehicles, and machineries used in the production of aluminum and P.V.C. joinery products. The acquisition of insulated glass is made from a local company near Deva city. The profiles and accessories are provided by two different companies, one for P.V.C. materials and, respectively, for aluminum.

The company usually handles its stock by keeping it to a minimum, using, in practice, a "Just in Time" operating process, but without the awareness of the concept. The company only stocks white materials, which are the ones which exhibit the highest demand. When the company receives customized orders, which require the use of different colored materials, the management orders the specific materials after receiving the order.

The number of customers for the past five years is captured in Table 1, which indicates a rather constant customer base. However, the company's revenue has increased over the years, so, even with approximately the same number of clients, it is noticeable that the size of the individual orders has increased.

Table 1. Number of clients for the past 5 years

Clients		
Year	**Legal Entities**	**Phisical Entities**
2015	30	72
2016	46	75
2017	41	93
2018	35	77
2019	38	102

Source: Compiled by authors based on the data from the company

The company's suppliers are two local manufacturers from Hunedoara county, with which it has a steady and lasting relationship, and does not focus on finding better alternatives or even taking any other options into account. Its current objective represents the expansion of its client base. At the beginning of each year, the company gets a 5% to 7% loyalty discount from both suppliers, if the payment is made in 30 days. If the company manages to complete the payment in 2 to 3 days, it gets an additional 5% to 7% discount.

The enterprise is aware of the negative effects waste can have, and keeps it to the lowest possible level. The company is mainly concerned with the negative effects that was can generate on their direct costs, but they are also conscious of their environmental impact. Any waste that occurs from any stage of the manufacturing process is thoroughly collected, and recycled, giving the company the possibility of regaining a part of their losses through the income collected from recycling.

An advantage that may be considered is the relatively small size of the company, which will make the implementation of the process much easier, offering both the management and the workforce a more direct perspective of the advantages that these processes have to offer. In addition, the relatively reduced amount of processes and machineries involved in manufacturing also represent an advantage, reducing the difficulty of implementation that would be required in a larger, more complex company.

Analysis

A Just in Time manufacturing system's main purpose is achieving maximum profit through the reduction of costs, and the maximization of productivity. When analyzing a microenvironment of small to medium companies that have the primary focus on manufacturing, they may not be aware of the potential uses of a J.I.T system. Even though the analyzed company, is making use of certain lean concepts, they are not aware and do not analyze their implications.

To find the most appropriate means to implement such a complex system, first of all, an overview of the company's management of its orders must be foreseen. At this point, the subject of analysis will represent order management, the relationship with the suppliers, the payment and quantity of the orders. The purpose of this study is to carry a quantitative analysis of the company's sales in the past 5 years.

Upon a first visual inspection of the sales data, presented in Figure 1, no seasonal patterns can be identified. Nevertheless, classical decomposition models and ARIMA models will be generated to test this aspect. Using the classical decomposition model, the study will be conducted from the perspective of the company's trend and seasonality, with the use of the moving average method on three, six and twelve months, and the result were compared.

The best results, for smoothing out the data, when the classical decomposition method is employed, are obtained for MA3. However, as it can be observed from Figure 2, the approach does not provide a good model, indicating a very low coefficient of determination R^2=0.2069 on the deseasonalized data. The other models build using the classical

decomposition approach also generated poor results on the deseasonalized data: MA (6) generated an R^2 of 0,0984 and MA (12) an R^2 of 0,1098, on the deseasonalized data. As previously mentioned ARIMA models were also tested.

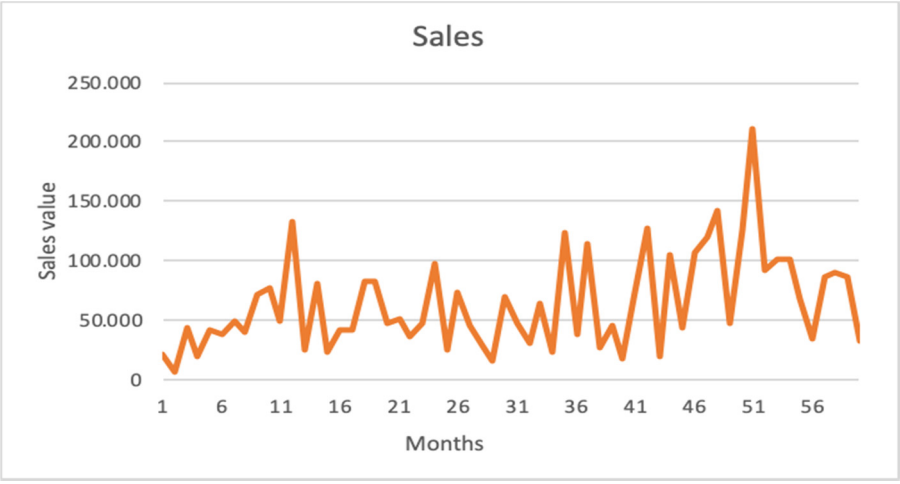

Figure 1. Sales Plot
Source: authors' own calculations

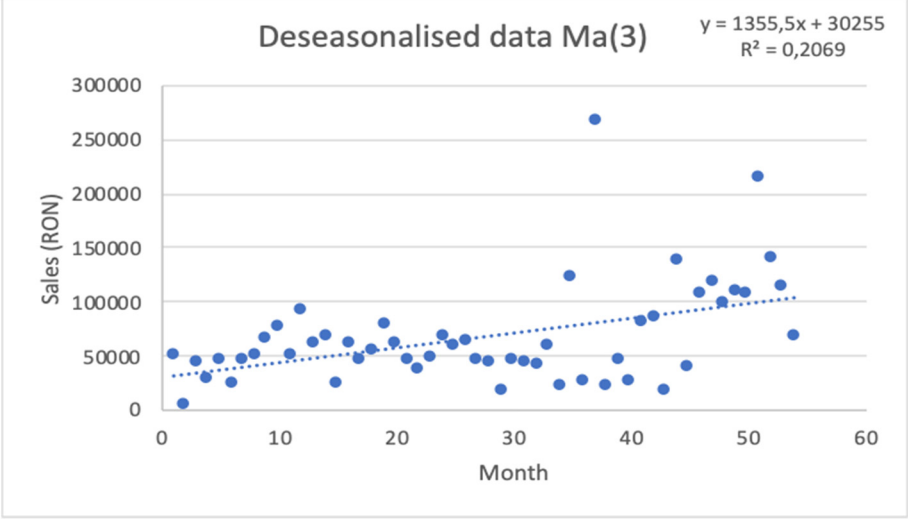

Figure 2. Deseasonalized data
Source: authors' own calculations

The Autoregressive Integrated Moving Average (ARIMA) model was also tested using three different moving average windows: 3 months, 6 months, and 12 months respectively. The last 6 months, representing 10% of the dataset, were included in the testing set, and the remaining 54 observations were employed to build the models. Certain error measurements (mean absolute error, mean squared error, and mean absolute percentage error) are presented in Table 2. The errors are strictly computed on the testing set. As it can be observed, as in the case of classical decomposition model, the moving average with a window of 3 months (MA3) exhibits the lowest errors.

Table 2. Forecasting errors for the ARIMA MODELS

	ARIMA (3)			ARIMA (6)			ARIMA (12)		
Data Point	MAE	MSE	MAPE	MAE	MSE	MAPE	MAE	MSE	MAPE
55	67.592,23	4.568.710.043,04	0,998	67.581,42	4.567.113.693,40	0,9982	67.638,71	4.574.994.779,33	0,9990946
56	33.841,01	1.145.213.957,82	0,996	33.861,36	1.146.524.361,17	0,9969	33.937,52	1.151.755.243,39	0,9991027
57	86.215,18	7.433.057.952,15	0,998	86.254,51	7.439.667.491,04	0,9987	86.316,39	7.450.519.596,95	0,9994488
58	90.339,78	8.161.275.705,90	0,999	90.345,67	8.162.160.480,91	0,9989	90.412,88	8.174.488.345,50	0,9996117
59	86.668,45	7.511.420.450,74	0,999	86.674,28	7.512.258.398,74	0,9986	86.733,91	7.522.770.901,03	0,9992731
60	32.508,56	1.056.806.525,29	0,996	32.501,17	1.056.261.385,59	0,9954	32.575,71	1.061.176.582,31	0,997694
SUM:	**397.165,22**	**4.979.414.105,82**	**0,998**	**397.218,42**	**4.980.664.301,81**	**0,9978**	**397.615,11**	**4.989.284.241,42**	**0,9990375**

Source: authors' own calculations

The forecasts for the testing set are depicted in Figure 3, along with the upper and lower bounds of the 95% confidence interval. As it can be observed, as in the case of classical decomposition models, the ARIMA model does not provide reliable forecasts. The values predicted for the testing set are quite far from the actual sales, as it can be observed from Table 3, or inferenced from the error measurements presented in Table 2.

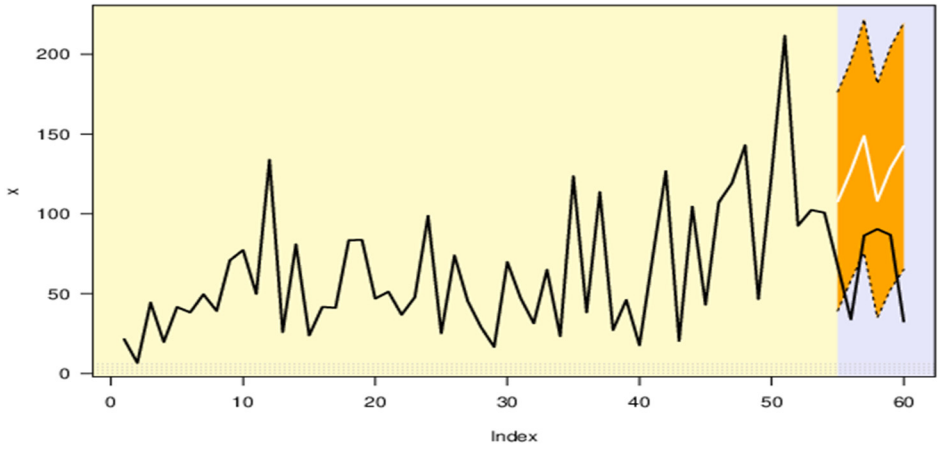

Figure 3. ARIMA model - Three-months testing period
(Figure generated using Wessa (2016); Source: authors' own calculations)

Another indication of the poor quality of the ARIMA models, is given by the wideness of the 95% CI. As it can be observed both visually from Figure 3, or from the data in Table 3, the confidence intervals generated for the forecasts are extremely wide. Moreover, even with such wide margins for the upper and lower bounds of the CI, it can be observed that for months 56 and 60, the actual values are actually outside the generated CI.

Table 3. ARIMA Model - Three-months model, confidence interval

Data Point	Y[t]	F[t]	95% LB	95% UB
55	67,700	107,7664	39,1873	176,3454
56	33,968	126.99	58,3050	195,6751
57	86,364	148,8160	75,7457	221,8863
58	90,448	108,2208	34,9723	181,4694
59	86,797	128,5487	52,7228	204,3746
60	32,651	142,4392	65,1897	219,6887

Source: authors' own calculations

The poor results obtained by both classical decomposition and ARIMA are an indication that the variation in the sales does not follow a seasonal pattern that can be captured. As it was also indicated by management, the variations in sales are irregular, being dependent on rather circumstantial factors such as export orders. The highest irregularities have started to appear after month 35, the period in which the outsourcing began. For smoothing out the irregularities in the sales, and exponential model was developed.

In order to generate a robust exponential smoothing model, different damping factors have been tested. The damping factor is a corrective value that is employed that minimizes the fluctuations in the sales data (Dewhurst, 2006). Given the high variation in sales, a rather large value for the damping factor was necessary to smooth out the irregularities. Also, two different trend-lines were employed for generating the forecasts: linear and polynomial of order 2.

Table 4. Coefficient of determination for different model structures

	Coefficient of Determination (R2)		
	α=0,3	α=0,6	α=0,8
Linear	0,319	0,498	0,697
Polynomial (grade 2)	0,326	0,166	0,708

Source: authors' own calculations

In the case of forecasting models, as the model complexity increases so does the model accuracy; however, a balance must be sought between the two objectives (Savan, 2015). Given these considerations, the exponential smoothing damping factor of 0.8 with a linear trend line was selected for the forecasts. As it can be observed from both Table 4, acceptable coefficients of determination can only be obtained with a damping factor of 0.8 (0.697 and 0.707). As expected, the polynomial provides a slightly better fit than the linear trend line. However, since the increase in R^2 is not justifying the increase in the model complexity, the linear model was selected for forecasts (see Figure 4).

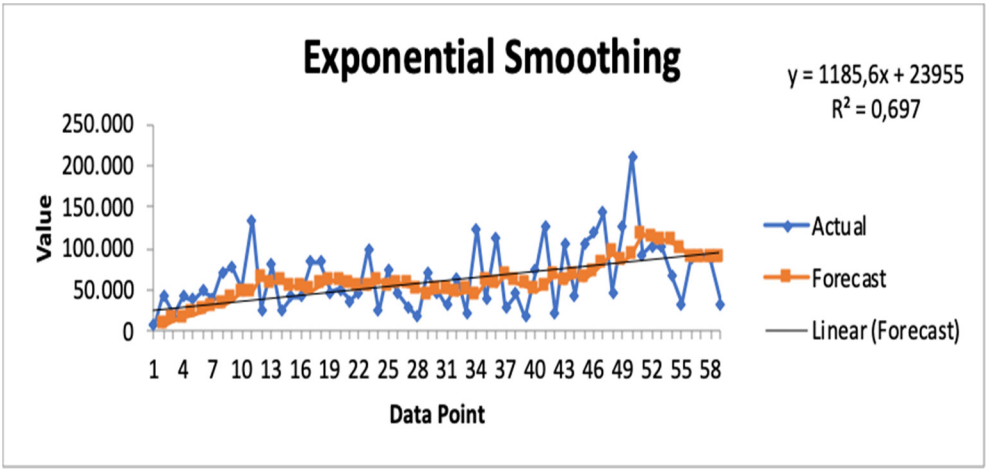

Figure 4. Exponential smoothing model
Source: authors' own calculations

As expected, the model will be influenced by the irregular variations. As it can be observed in Figure 4 and Table 5, there are months in which the offered forecasts are quite far from the actual data: as in the case of the ARIMA models is the case of months 55 and 60. However, as we concluded that no seasonal patterns or any other constant patterns can be extracted, the above developed model is considered the best for the given data.

Table 5. Forecasting errors - linear trend

Linear Trend					
Data Points	Y[t]	F[t]	MSE	MAPE	MAE
55	67.700	89163,00	460.660.369,00	0,317031019	21463
56	33.968	90348,60	3.178.772.056,36	1,65981512	56380,6
57	86.364	91534,20	26.730.968,04	0,059865222	5170,2
58	90.448	92719,80	5.161.075,24	0,025117194	2271,8
59	86.797	93905,40	50.529.350,56	0,08189684	7108,4
60	32.651	95091,00	3.898.753.600,00	1,912345717	62440
SUM:			**1270101236,53**	**0,676011852**	**154834**

Source: authors' own calculations

Further discussion

According to JIT principles, the reduction of costs and improvement of productivity is achieved through the elimination of waste (Monden, 2012). In the case of excessive production resources, three types of waste are taken into account. The excessive workforce represents the first one, and, taking into account the ratios, it is not a type of waste present in the analyzed company. The company has, currently, 5 employees, 4 of them working directly in the production department. The total workspace is of 380 square meters, which leads to a ratio of 76 square meters per employee, which leads us to consider a different kind of waste. With an average of 76 square meters/employee, after discussions with the management, it was identified as generating an unnecessary cost that can be reduced.

The existing inventories do not represent a major impediment, since the factory only stocks white and grey materials, which are the most commonly used, and order the custom materials when they are needed. Also, the issue that arises using this method is that the company mainly focuses on a naive forecasting method, together with an analysis of the trend from the previous year, when stocking up.

The small-sized enterprise does not make use of a fully automated production process. Orders are being handled by the employees on an as needed basis. This can be also be seen as an advantage, when it comes to the objective of avoiding overproduction, which can be kept at a minimum.

Finally, another potential type of waste is represented by the unnecessary capital investment. This waste is also, currently, kept to a moderate amount, the only impediment being the large storage space, leading not only to higher expenses with rent, but also to increase expenses with utilities and other indirect costs. An extra warehouse of 140 square meters was built in 2017, the time in which the company has started exporting 35% of its products. The extra space may have been needed due to the volume of orders increasing, but the number of employees decreased by 1 in that period. Due to the small workforce, especially in the production department, the extra space cannot be used to its maximum capacity (Monden, 2012).

The use of an accurate forecasting method, hiring new employees or reducing the workspace are aspects to be taken into consideration when making use of a JIT manufacturing system. The implementation of JIT philosophy must start from the top management, and be accepted by all the employees, including those involved in the production process (Monden, 2012). The business owner has started the company over 20 years ago after the fall of communism, before being a production worker himself in a similar factory. Due to his age, experience and paradigms, which he has followed after opening his own company, he has a rather rigid mindset regarding how the manufacturing process should be functioning. In order for the management to be open to embrace such an idea, the information must be transmitted in the form of a well thought out suggestion and not give the idea that the managers' current way of thinking is doubted in any way (Walleigh, 1986). Clear advantages need to be illustrated in order to convince him; a change is beneficial. At the same time, he must find a way to transfer this way of thinking to his employees, which are more or less in the same situation as he is, but with no management experience.

First of all, top management has to accept the idea that any kind of inventory leads to inflexibility, unused assets, and decreased liquidity overall. This issue may be addressed through reducing the stock of common materials to almost 0, which represent the most of their inventory and try and implement the same strategy used for the custom materials which are bought only when a custom order has been placed, with a lead time of maximum 30 days. This strategy leads to a different challenge: the relationship with the suppliers, which represents another source of inflexibility. Having only two suppliers and not exploring other possibilities, will affect the company's way of operating, due to the fact that no other variables are taken into consideration, and the suppliers are the ones dictating the conditions for purchasing the raw materials. However, this inflexibility is counterbalanced by the loyalty and discounts the company receives for exclusivity; this being the main reason management decided to operate with such a low supplier base.

Deciding on increasing the supplier base represents a strategic decision, which must be carefully analyzed. First of all, a market research of potential suppliers followed by the solicitation of a few collaboration

offers should be carried. Secondly, a forecast should be made of the future costs compared to the decrease in inventory and potential productivity growth. Up until this point, the management will have minimum costs of research and may be the starting point for new opportunities to come up. Finally, a decision must be taken to maximize the balance between the financial advantages of having a small supplier base and the flexibility provided by the higher number of suppliers.

Literature suggests that for implementing JIT in SMEs, a well-defined plan and set of objectives must be defined (Malik, 2012). Based on the existing literature and in close collaboration with management we developed the implementation plan presented below.

Strategic goal:

- The implementation of a Just in Time manufacturing system.
- SMART Objectives (based on the framework proposed by Tosi et al. (1970)):
- Get the JIT concept to be accepted by the top management by systematically presenting the potential benefits of the concept within the next 4 months.
- Transfer the acceptance of the concept from top management to the employees in order to be implemented in the direct manufacturing process within the next 6 months.
- Set up an Enterprise Resource Planning system in order to integrate all the data of the company into a unified system within the next year.
- Develop a strategy of waste reduction within the company through the minimization of excessive inventory within the next year.
- Test the concept after implementation in order to evaluate the success of the project.
- Develop a strategy of continuous control in order for JIT to properly function in the long term, after testing is finished.

The achievement of these objectives should be closely monitored through the acknowledgment of specific key results for each objective. The objectives presented in Table 6 were developed in collaboration with management and taking into account existing JIT literature (Malik, 2012).

Table 6. Company objectives

Objective	**Key result**
Acceptance of the concept by top management	Taking the first step towards implementation
Acceptance of the concept by employees	The direct manufacturing process will be done in a Just in Time manner
Set up of an Enterprise Resource Planning system	Having all the company's data and processes centralized in one system
Development of a waste reduction strategy	The decrease of the inventory level
Concept testing	Deciding if the concept is ready for long-term implementation
Development of a continuous control strategy	Having a sustainable, long-term, Just in Time manufacturing system

(*Source*: Malik, 2012)

Conclusions

The implementation of the Lean philosophy in the manufacturing process within an SME can generate a series of advantages e.g. increased productivity, reduced costs, but also raises a number of challenged. Risk management represents a key success factor in the final result. For example, the minimization of inventories may not only have the effect of reducing waste, but it could also generate a series of disadvantages: an increase in lead time, shortages, and a disruption in the manufacturing process. A balance must be achieved when taking strategic decisions for optimal inventory levels and optimal supplier base.

The development of a quantitative forecast models is useful for the implementation of JIT manufacturing. Through the carried research an illustration of how forecasting can be employed to support decision making was provided. The selected forecasting models are not intended

to be extrapolated to all SMEs, certain companies might exhibit seasonal or even cyclical patterns, which were not identified within the analyzed datasets. In the analyzed case study, the company did not experience any constant pattern, exhibiting a high degree of irregularities. As a result, models such as classical decomposition models and ARIMA did not provide reliable solutions. Given the nature of the data, the exponential smoothing was selected to eliminate some of the irregularities; a high damping factor was needed to generate a smooth data set.

Another important decision required for model building, concerns the balance between the model complexity and model accuracy. After eliminating the irregularities in the data (through exponential smoothing) a trendline was fitted to the 60 data-points. Obviously, as model complexity is increased, there is an implicit increase in model accuracy. For the analyzed dataset, a simple linear regression offered a good model fit (on the smoothed-out data set).

It must be noted that the analysis carried on the testing set (10% of the data) indicated high error measurements for the forecasts. This result was anticipated given the high variation in the data. Moreover, it could be expected that these circumstances would apply to many SMEs, which through the characteristics of their businesses will face high variations and irregularities in sales. In the case of the company being analyzed, the underlying cause of fluctuations was identified, by management, as being the orders for export. The orders received for export have large lead times and usually require high quantities (implying high sales values), but, as opposed to local orders, they are highly irregular.

Based on the existing literature, the results, and the discussions carried with the management, a set of objectives and steps were proposed. Also, a series of potential improvement areas were identified: optimizing the warehouse per worker ratio, increasing the supplier base, and including forecasting for decision support. It must be highlighted that for implementation full collaboration is required from top management.

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